

APPENDIX G

THREATENED, ENDANGERED, PROPOSED,
AND CANDIDATE SPECIES

USFS REGION 2 SENSITIVE SPECIES AND
MANAGEMENT INDICATOR SPECIES

BLM SENSITIVE SPECIES

Operators of four coal mines in Campbell and Converse Counties, Wyoming have applied to lease five tracts of federal coal as maintenance leases under the Leasing on Application regulations at 43 CFR 3425, as discussed in Chapter 1 of this environmental impact statement (EIS). The five tracts being considered for leasing are the NARO North, NARO South, Little Thunder, West Roundup and West Antelope Lease by Application (LBA) Tracts. The purpose of this Appendix is to provide information about the potential environmental effects that leasing these tracts would have on federally Endangered, Threatened, Proposed, and Candidate Species, and U.S. Forest Service (USFS) Region 2 Sensitive wildlife and vegetative species (terrestrial and aquatic), USFS Thunder Basin National Grassland (TBNG) Forest Plan Management Indicator Species (MIS), and Bureau of Land Management (BLM) designated Sensitive Species.

GENERAL ANALYSIS AREA DESCRIPTION

The General Analysis Area is shown in Figure 3-1 of this EIS. It includes all or part of Townships 40 through 44 North, Ranges 69 through 71 West, and includes portions of southern Campbell County and northern Converse County, Wyoming. Within the General Analysis Area are five active surface coal mines. Four of those mines, Black Thunder, North Rochelle, North Antelope/Rochelle Complex, and Antelope, have applied to lease the federal coal included in five tracts located adjacent to their existing mines. The five tracts and applicant mines are:

- NARO North LBA Tract adjacent to and north of the North Antelope/Rochelle Complex;
- NARO South LBA Tract adjacent to and south of the North Antelope/Rochelle Complex;
- Little Thunder LBA Tract adjacent to and west of the Black Thunder Mine;
- West Roundup LBA Tract adjacent to and southwest of the North Rochelle Mine; and
- West Antelope LBA Tract adjacent to and west of the Antelope Mine.

A study area has been identified for each tract, which includes the tract as applied for and the adjacent lands BLM is considering adding to each tract. The anticipated permit amendment area for each applicant mine is also included in the study area. The anticipated permit amendment study area includes lands adjacent to and outside of an applicant mine's current permit area which the applicant anticipates would be included within an amended mine permit area if they acquire a lease for the maintenance tract they have applied for. The study areas for each tract are shown in Figure 3-1.

The General Analysis Area is located in the eastern portion of the Powder River Basin (PRB), a part of the Northern Great Plains that includes most of northeastern Wyoming. Vegetation is primarily sagebrush and mixed grass

prairie. The climate is semi-arid, with an average annual precipitation at Wright, located approximately six miles east of the Little Thunder LBA Tract (see Figure 1-1 of this EIS) of just over 11 inches (Martner 1986). In the General Analysis Area the regional wind speeds average from nine to 13 miles per hour with local variations in speed and direction due to differences in topography. The General Analysis Area is drained by tributaries to the Cheyenne River, the major surface drainages in this portion of the PRB are shown in Figure 3-5 of this EIS. Elevations range from about 4,500 feet (ft) to 5,000 ft above sea level. Land ownership within the LBA tracts and the General Analysis Area consists of private lands intermingled with federal lands. Federally owned lands included in three of the tracts (NARO North, Little Thunder, and West Antelope) are part of the TBNG and are administered by the USFS. More detailed information about the General Analysis Area is included in Chapter 3 of this EIS.

CONSULTATION HISTORY

The LBA tracts as applied for and the existing federal coal leases and existing approved mine permit boundaries for the adjacent applicant mines are shown in Figures 1-2 through 1-5 of this EIS. Consultation with the U.S. Fish and Wildlife Service (USFWS) has previously occurred for all lands that are within the existing approved mine permit area for each mine.

The location of the existing North Antelope/Rochelle Complex coal leases, the existing approved mine permit area, and the NARO North and NARO South LBA Tracts are shown in Figure 1-2 in this EIS. Consultation with USFWS has previously been conducted for the area included within the existing approved mine permit area. In the most recent mine permit State Decision Document for the Powder River Coal Company's (PRCC's) North Antelope/Rochelle Complex, dated December, 1999, is a letter dated August 19, 1999, from Michael Long, USFWS Cheyenne, Wyoming to Georgia Cash, Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD), Cheyenne, Wyoming documenting approval of the Raptor and Migratory Birds of High Federal Interest (MBHFI) plans for the North Antelope/Rochelle Complex. Also included as Condition No. 2 of the North Antelope/Rochelle Complex State Decision Document, is a requirement for completion of conferencing and consultation with USFWS by the Office of Surface Mining Reclamation and Enforcement (OSM) by February 1, 2000. The incorporation of species-specific protective measures drafted by the Wyoming Field Office of the USFWS and commitment to report/tabulate dead or impaired listed species into the mining permit satisfied the permit condition for completion of conferencing and consultation with USFWS. These items were reviewed with WDEQ/LQD and PRCC in a meeting on January 6, 2000 and documented in a letter dated January 28, 2000, from Michael Long, USFWS to Georgia Cash, WDEQ/LQD.

The location of the existing Black Thunder Mine coal leases, the existing approved mine permit area, and the Little Thunder LBA Tract are shown in Figure 1-3 in

this EIS. Consultation with USFWS has previously been conducted for the area included within the existing approved mine permit area. In the September 1995 mine permit State Decision Document for the Black Thunder Mine is a letter dated November 29, 1995, from Charles P. Davis, USFWS, Cheyenne, Wyoming, to Gregory Reed, OSM, Denver, Colorado, stating concurrence with the Thunder Basin Coal Company (TBCC) permit renewal and amendment project assessment relating to black-footed ferret, bald eagle, and Ute ladies'-tresses. The December 2000 mine plan State Decision Document for the Black Thunder Mine references a USFWS letter dated August 21, 2000, from Michael M. Long, USFWS, Field Supervisor, Cheyenne, Wyoming, to Doug Emme, WDEQ/LQD, Sheridan, Wyoming, which indicated that the agency reviews were completed and the Thundercloud amendment application and commitments were acceptable and that as long as the operation is conducted as proposed all wildlife issues of Federal interest will be adequately addressed.

The location of the existing North Rochelle Mine coal leases, the existing approved mine permit area, and the Little Thunder LBA Tract are shown in Figure 1-4 in this EIS. Consultation with USFWS has previously been conducted for the area included within the existing approved mine permit area. A letter dated October 8, 2002, from Michael M. Long, USFWS, Cheyenne, Wyoming, to Stacy Page, WDEQ/LQD, Sheridan, Wyoming, states USFWS concurrence with Triton Coal Company's (TCC's) plan to protect threatened and endangered (T&E) species listed under the Federal Endangered Species Act.

The location of the existing Antelope Mine coal leases, the existing approved mine permit area, and the West Antelope LBA Tract are shown in Figure 1-5 in this EIS. Consultation with USFWS was previously conducted for the area included within the existing approved mine permit area. In the December 2001 mining plan State Decision Document for the Antelope Mine is a letter dated December 17, 2001, from Michael M. Long, USFWS, Cheyenne, Wyoming, to Larry Kline, OSM, Denver, Colorado, verifying that the USFWS "is satisfied with the species-specific protective measures required to satisfy the consultation requirements of Section 7 of the Endangered Species Act of 1973, as amended (ACT), for the Horse Creek Amendment permit". Furthermore, the USFWS reviewed the MBHFI protection plan in the mine permit and, as stated in the December 2001 State Decision Document, has not given concurrence to the plan, stating the plan does not contain adequate commitment for the amount of mountain plover habitat that will be reclaimed and reestablished and does not contain adequate bond release criteria. Therefore, a condition was attached to Antelope Coal Company's (ACC's) permit stating that when the plan is approved by the USFWS, the approval letter will be inserted into the mine permit document.

THE PROPOSED ACTION

This EIS considers five Proposed Actions, one for each LBA tract listed above in the description of the General Analysis Area. Under the Proposed Action for each tract, a separate competitive lease sale would be held for the federal coal included in each tract as applied for. If there is a successful bidder at that sale, a lease would be issued for the tract of federal coal as applied for. Each tract offered for lease would be subject to standard and special lease stipulations developed for the Wyoming PRB. The stipulations that would be attached to each tract are listed in Appendix D of this EIS.

Under each Proposed Action, it is assumed that each LBA tract would be developed as a maintenance lease to extend the life of the adjacent existing surface coal mine. As a result, under each Proposed Action, existing facilities, roads and employees would be used to mine the coal included in each tract.

There are five No Action Alternatives, one for each tract. Under the No Action Alternative (Alternative 1) for each tract, the BLM would reject the lease application for that tract and not offer it for competitive sale at this time. Selection of Alternative 1 would not affect permitted mining activities on the existing leases at any of the adjacent mines.

In reviewing these lease applications, the BLM identified alternate tract configurations for consideration for leasing. These alternate tract configurations are analyzed as alternatives in this EIS. The alternate tract configurations are described in Chapter 2 of this EIS and shown in Figures 2-1 through 2-4. No alternate tract configurations were identified for the NARO North LBA Tract. Alternative 2 for the NARO South LBA Tract considers adding additional lands west of the LBA tract, while Alternative 3 considers removing some of the lands applied for in the western portion of the LBA tract. Alternative 2 for the Little Thunder LBA Tract considers adding additional lands west of the LBA tract and Alternative 3 considers dividing the Alternative 2 tract into a north and a south tract. Alternatives 2 and 3 for the West Roundup LBA Tract consider increasing the size of the LBA tract. Alternative 2 for the West Antelope LBA Tract considers adding additional land northeast of the LBA tract and Alternative 3 considers decreasing the size of the tract.

FEDERALLY ENDANGERED, THREATENED, PROPOSED, AND CANDIDATE SPECIES BIOLOGY AND HABITAT REQUIREMENTS

The following discussion evaluates the potential environmental effects of the Proposed Actions and Action Alternatives on federally endangered, threatened, proposed, and candidate species.

Endangered: An animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range is classified as endangered.

Threatened: Threatened status applies to an animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Proposed: A proposed species is any species of animal or plant that is proposed in the Federal Register to be listed under Section 4 of the Endangered Species Act (ESA).

Candidate: Species considered by the USFWS as candidates for possible addition to the lists of T&E wildlife and plants.

The following is a list of species that was provided by USFWS (June 2002), representing all federally listed T&E species, species proposed for listing , and candidate species that may occur in the General Analysis Area.

Bald eagle (*Haliaeetus leucocephalus*): Federally listed as Threatened

Ute ladies'-tresses (*Spiranthes diluvialis*): Federally listed as Threatened

Black-footed ferret (*Mustela nigripes*): Federally listed as Endangered

Mountain plover (*Charadrius montanus*): Federally designated as Proposed Threatened

Black-tailed prairie dog (*Cynomys ludovicianus*): Candidate

Listed Species**Bald eagle (*Haliaeetus leucocephalus*)**

The bald eagle is a federally-listed threatened species (USFWS 1995). Bald eagles occur throughout North America from Alaska to Newfoundland, and from the southern tip of Florida to southern California. In Wyoming, this species builds large nests in the crowns of large mature trees such as cottonwoods or pines. Food availability is probably the single most important determining factor for bald

eagle distribution and abundance. Fish and waterfowl are the primary sources of food where eagles occur along rivers and lakes. Big game and livestock carrion, as well as larger rodents (e.g., prairie dogs) also can be important dietary components where these resources are available (Ehrlich et al. 1988). This species is an uncommon breeding resident in Wyoming utilizing mixed coniferous and mature cottonwood-riparian areas near large lakes or rivers as nesting habitat (Luce et al. 1999).

Bald eagles are closely associated with water, with nest sites commonly less than one mile from a lakeshore or riverbank. Large trees are necessary to support eagle nests, typically cottonwoods or several conifer species. Nest trees are often the largest trees in the stand. Typically, there are alternate nests within or in close proximity to the nest stand. Snags and open-canopied trees near the nest site and foraging areas provide favorable perch sites. Old-growth stands with their structural diversity and open canopies are an important habitat for bald eagles. Bald eagles that have open water or alternate food sources near their nesting territories may stay for the winter, other eagles migrate southward to areas with available prey.

Ute ladies'-tresses (*Spiranthes diluvialis*)

The Ute ladies'-tresses, a member of the orchid family, was listed as threatened on January 17, 1992 due to a variety of factors, including habitat loss and modification, and hydrological modifications of existing and potential habitat areas.

Ute ladies'-tresses is a perennial herb with erect, glandular-pubescent stems 12 to 50 centimeters tall arising from tuberous-thickened roots. This species flowers from late July to September. Plants probably do not flower every year and may remain dormant below ground during drought years.

Rangewide, Ute ladies'-tresses occurs primarily on moist, subirrigated or seasonally flooded soils in valley bottoms, gravel bars, old oxbows or floodplains bordering springs, lakes, rivers or perennial streams at elevations between 1,780 and 6,800 ft (Fertig and Beauvais 1999). Suitable soils vary from sandy or coarse cobbly alluvium to calcareous, histic or fine-textured clays and loams. Populations have been documented from alkaline sedge meadows, riverine floodplains, flooded alkaline meadows adjacent to ponderosa pine, Douglas-fir woodlands, sagebrush steppe, and streamside floodplains. Typical suitable habitat for the orchid is found along perennial or ephemeral streams with subirrigation into late July or August. Until recent coal bed methane (CBM) development in the PRB, ephemeral streams with subirrigation into late July and August did not exist. Some occurrences are also found on agricultural lands managed for winter or early season grazing or hay production. Known sites often have low vegetative cover and may be subjected to periodic disturbances such as flooding or grazing. Populations are often dynamic and "move" within a watershed

as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais 1999).

The total known population of this species is approximately 25,000 to 30,000 individuals. Occurrences range in size from one plant to a few hundred individuals. At the time of listing, Ute ladies'-tresses was only known from Colorado, Utah, and extreme eastern Nevada. It is currently known from western Nebraska, southeastern Wyoming, north-central Colorado, northeastern and southern Utah, east-central Idaho, southwestern Montana, and central Washington. In Wyoming, Ute ladies'-tresses is known from four occurrences in the western Great Plains in Converse, Goshen, Laramie, and Niobrara Counties, all discovered between 1993-1997 (Fertig and Beauvais 1999). One of these occurrences was recorded from the Antelope Creek watershed in northwestern Converse County.

Black-footed Ferret (*Mustela nigripes*)

The black-footed ferret is a federally-listed endangered species. The black-footed ferret historically occurred throughout Texas, Oklahoma, New Mexico, Arizona, Utah, Kansas, North and South Dakota, Montana, Wyoming, Nebraska, and Colorado. The black-footed ferret is closely associated with prairie dogs, depending almost entirely upon the prairie dog for its survival. The decline in ferret populations has been attributed to the reduction in the extensive prairie dog colonies that historically existed in the western United States. Ferrets may occur within colonies of white-tailed or black-tailed prairie dogs. The USFWS has determined that, at a minimum, potential habitat for the black-footed ferret must include a single white-tailed prairie dog colony of greater than 200 acres, or a complex of smaller colonies within a 4.3 mile (7 km) radius circle totaling 200 acres (USFWS 1989). Minimum colony size for black-tailed prairie dog is 80 acres (USFWS 1989). The last known wild population was discovered in Meeteetse, Wyoming. Individuals from this population were captured and have been raised in protective captive breeding facilities in an effort to prevent the species' extinction (Clark and Stromberg 1987).

Recent survey efforts in the Shirley Basin have identified a population at this former re-introduction site. This is the only known population in Wyoming.

Proposed Species

Mountain Plover (*Charadrius montanus*)

The mountain plover is proposed for federal listing (USFWS 1999a). The USFWS has 60 days to seek input from three species experts, the public, scientific community, and Federal and State agencies. The USFWS published a 60-day extension to the comment period on April 19, 1999 (USFWS 1999b). In October 2001, the USFWS designated the mountain plover as a proposed threatened species (USFWS 2001).

This species utilizes high, dry, shortgrass prairie with vegetation typically shorter than four inches tall. Within this habitat, areas of blue grama (*Bouteloua gracilis*) and buffalograss (*Buchloe dactyloides*) are most often utilized, as well as areas of mixed-grass associations dominated by needle-and-thread (*Stipa comata*) and blue grama (Dinsmore 1983).

Nests consist of a small scrape on flat ground in open areas. Most nests are placed on slopes of less than five degrees in areas where vegetation is less than three inches tall in April. More than half of identified nests occurred within 12 inches of old cow manure piles and almost 20 percent were found against old manure piles in similar habitats in Colorado. Nests in similar habitats in Montana (Dinsmore 1983) and other areas (Ehrlich et al. 1988) were nearly always associated with the heavily grazed shortgrass vegetation of prairie dog colonies.

Mountain plovers arrive on their breeding grounds in late March with egg-laying beginning in late April. Clutches are hatched by late June and chicks fledge by late July. The fall migration begins in late August and most birds are gone from the breeding grounds by late September.

Candidate Species

Black-tailed Prairie Dog (*Cynomys ludovicianus*)

The black-tailed prairie dog was added to the list of candidate species for federal listing on February 4, 2000 (USFWS 2000a). At that time, the USFWS concluded that listing the black-tailed prairie dog was warranted but precluded by other higher priority actions to amend the lists of threatened and endangered species. No specific date for proposal for listing was given, but the USFWS has committed to reviewing the status of the species one year after publication of the above-mentioned notice (i.e., on February 4, 2001) (USFWS 2000b). As of June 2002, the USFWS was listing the black-tailed prairie dog as a candidate (USFWS June 2002).

The black-tailed prairie dog is a highly social, diurnally active, burrowing mammal. Aggregations of individual burrows, known as colonies, form the basic unit of prairie dog populations. Found throughout the Great Plains in shortgrass and mixed-grass prairie areas (Fitzgerald et al. 1994), the black-tailed prairie dog has declined in population numbers and extent of colonies in recent years due to habitat destruction or disturbance and pest control activities. In Wyoming, this species is primarily found in isolated populations in the eastern half of the state (Clark and Stromberg 1987). Many other wildlife species, such as the black-footed ferret, swift fox, mountain plover, ferruginous hawk and burrowing owl are dependant on the black-tailed prairie dog for some portion of their life cycle (USFWS 2000b).

This species is considered a common resident, utilizing shortgrass and mid-grass habitats in eastern Wyoming (Luce et al. 1999).

NARO NORTH AND SOUTH LBA TRACTS

Listed Species

Ute ladies'-tresses (*Spiranthes diluvialis*)

Habitat and/or Occurrences

Suitable habitat within respective survey areas was traversed during the time of actual flowering of the known population of the Ute ladies'-tresses orchid on Antelope Creek in northern Converse County. Prefield work involved a visit to a known population of the orchid to verify the correct phenological state (flowering) of the orchid. Topographical and wetland delineation maps for the study area were reviewed to identify all significant drainages that may contain the orchid. Suitable habitat factors included less steep stream banks, light soil texture and well drained soils, close lateral or vertical distance to perennial water source during the flowering period, lack of plant competition, lack of general soil alkalinity/salinity, and current or historical management practices that did not promote overgrazing and extensive use of riparian areas.

Areas within the NARO North and NARO South LBA Tracts that are inside the currently approved North Antelope/Rochelle Complex permit area were surveyed by BKS Environmental Associates (Paige Wolken) August 28 and September 2, 1997. No individuals of the Ute ladies'-tresses orchid were located during those surveys. Areas within the LBA tracts that are outside the currently approved North Antelope/Rochelle Complex permit area were surveyed by BKS Environmental Associates (Paige Wolken, Heidi Smith, and Brenda Schladweiler) in August of 1999 and August of 2000. No individuals of the Ute ladies'-tresses orchid were located during those surveys.

Effects of the Proposed Project

Leasing the NARO North and South LBA Tracts under the Proposed Actions or Action Alternatives is not likely to adversely affect Ute ladies'-tresses. No individuals have been located during surveys of potentially suitable habitat on the two tracts in 1997, 1999, and 2000. Because of the ability of this species to persist below ground or above ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. Undetected populations could be lost to surface disturbing activities. If these two tracts are leased, mining operations could not be initiated until the Mineral Leasing Act of 1920 (MLA) mining plan and the state mining and reclamation

permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

Bald eagle (*Haliaeetus leucocephalus*)

Habitat and/or Occurrences

Bald eagles are relatively common winter residents and migrants in northeastern Wyoming's PRB. Historically, this species has infrequently been seen foraging in the general vicinity of North Antelope/Rochelle Complex and perched in cottonwood trees along Antelope Creek, south of the North Antelope/Rochelle Complex. No unique or concentrated sources of carrion or prey occur in the study area for the NARO North and NARO South LBA Tracts, so foraging bald eagles would not be attracted to the area in great numbers. A few isolated bald eagle nesting attempts have been recorded in the region, but none have been near the NARO North and South LBA Tracts.

The NARO North and South LBA Tracts, the anticipated permit amendment study area and a two-mile perimeter were searched for bald eagles and roosting habitat on February 28, 2001 by Thunderbird Wildlife Consulting, Inc. (TWC), Gillette, Wyoming. During the survey, three adult bald eagles were seen perching in a small cottonwood tree along Horse Creek in the NE $\frac{1}{4}$ of Section 22, T.41N., R.71W., about one mile west of the NARO South anticipated permit amendment area under the Proposed Action. Because of the small stature of the tree and the small number of eagles, this was not classified as a bald eagle roost. Bald eagles were also observed on four occasions during baseline wildlife surveys conducted in 2000 by TWC. On February 23 and March 23, 2000, adult bald eagles were observed in the SE $\frac{1}{4}$ of Section 35, T.42N., R.71W., within the NARO North LBA Tract. Two sub-adult bald eagles were observed on April 18, 2000 perched on a rock in Porcupine Reservoir in Section 27, T.41N., R.70W. One adult was seen on December 11, 2000 perched on a fence post in the NE $\frac{1}{4}$ of Section 11, T.41N., R.71W. Both of these observations were within the anticipated permit amendment area for the North Antelope/Rochelle Complex under the Proposed Action and Action Alternatives.

Effects of the Proposed Project

Leasing and mining the NARO North and South LBA Tracts under the Proposed Action or Action Alternatives is not likely to adversely effect bald eagles. Bald eagle foraging habitat would be lost on the tracts during mining and before final reclamation. The loss of any potential prey habitat would be short-term. Foraging habitat that is lost during mining would be replaced as reclamation continues on already mined out areas. Eagles may alter foraging patterns as they fly around areas of active mining activity. Potential for bald eagles to collide with or be electrocuted by electric power lines on the mine site is minimal due to use of raptor-safe power lines. An increase in the volume and frequency of traffic on the

roads accessing North Antelope/Rochelle Complex may result in an increase in vehicular collisions and roadside carcasses. This could result in an increase of bald eagle foraging along roads in this area. If a lease is issued for these two tracts, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and consultation with USFWS would be required.

Black-footed ferret (*Mustela nigripes*)

Habitat and/or Occurrences

Black-footed ferrets are rare and very unlikely to occur in the vicinity of the NARO North and South LBA Tracts. The black-footed ferret is closely associated with prairie dogs, depending almost entirely upon the prairie dog for its survival. A baseline prairie dog town survey conducted in 2000 found no colonies on the NARO North LBA Tract and three colonies on the NARO South LBA Tract (see prairie dog discussion below). The prairie dog towns located on the NARO South LBA Tract are less than 80 acres in size. An additional three colonies were found within a half-mile of the two LBA tracts. In ferret surveys of the North Antelope/Rochelle Complex and surrounding areas, qualified biologists have not observed any evidence of ferret habitat or activity. For example, no black-footed ferret sign was detected during surveys conducted by TWC (formerly Powder River Eagle Studies) in three black-tailed prairie dog colonies near the mine complex in winter/spring 1999.

Effects of the Proposed Project

Issuing federal coal leases for the NARO North and South LBA Tracts under the Proposed Actions or Action Alternatives is not likely to adversely affect black-footed ferrets. Prairie dog towns of more than 80 acres in area, the typical suitable habitat for this species, are not currently located on either tract. In wildlife surveys conducted for more than the last 20 years by the mines in this area, none of the prairie dog towns in the General Analysis Area have harbored any black-footed ferrets. If leases are issued for these two tracts, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys would be required and USFWS consultation would be required.

Proposed Species

Mountain plover (*Charadrius montanus*)

Habitat and/or Occurrences

Mountain plovers have regularly nested at the Antelope Mine, located south of and adjacent to the NARO South LBA Tract, but few have been sighted in the NARO North and South LBA study area. Each year from 1994 through 1996, adult plovers were seen in a black-tailed prairie dog colony in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 17, T.41N., R.70W., which is on an existing North Antelope/Rochelle Complex federal coal lease. All of those sightings were made in the spring by qualified biologists with Powder River Eagle Studies. Numerous searches of the colony and surrounding area have failed to locate any plover nests and no young have ever been seen. No plovers have been observed in any prairie dog colonies or elsewhere during baseline surveys of the NARO North and South LBA Tracts wildlife study area.

Effects of the Proposed Project

Issuing federal coal leases for the NARO North and South LBA Tracts under the Proposed Actions or Action Alternatives is not likely to jeopardize mountain plovers. The typical suitable habitat for this species is not currently located on either of the tracts, and no plovers have been observed. If leases are issued for these LBA tracts, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

Candidate Species

Black-tailed prairie dog (*Cynomys ludovicianus*)

Habitat and/or Occurrences

Prairie dog towns were surveyed on the NARO North and South LBA wildlife baseline study area and the North Antelope/Rochelle Complex's current permit area in 2000 by TWC. Twenty-seven black-tailed prairie dog colonies totaling 1,148 acres were inventoried on the study area. Six prairie dog towns were inventoried on or within one half-mile of the two LBA tracts. No colonies were observed on the NARO North LBA Tract and one colony (located in the SW $\frac{1}{4}$ of Section 26, T.42N., R.71W.) is located within a half-mile radius of that proposed lease boundary. Three colonies were observed on the NARO South LBA Tract and two others (located in the W $\frac{1}{2}$ of Section 17 and the NE $\frac{1}{4}$ of Section 28, T.41N., R.71W.) are within a half-mile radius of that proposed lease boundary. No additional prairie dog towns were observed on the area that would be added under Alternative 2 for the NARO South LBA Tract.

Effects of the Proposed Project

Issuing a federal coal lease for the NARO North LBA Tract under the Proposed Action or Action Alternatives is not likely to jeopardize the continued existence of

prairie dogs because no prairie dog towns are currently located on the tract. Issuing a federal coal lease for the NARO South LBA Tract under the Proposed Action or Action Alternatives is not likely to jeopardize the continued existence of prairie dogs. There are three small (less than 80 acres) prairie dog colonies located on the NARO South LBA Tract. Those colonies and individuals in those colonies would be likely to be adversely affected if a federal coal lease is issued for the NARO South LBA Tract under the Proposed Action or Action Alternatives, however, there are other colonies in this area which would not be affected by mining operations at the North Antelope/Rochelle Complex or other nearby mines. Habitat where prairie dogs could establish towns would be lost during mining but would be replaced as reclamation occurs on already mined areas. If leases are issued for these LBA tracts, mining operations could not be initiated until the MLA mining plan and state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

LITTLE THUNDER LBA TRACT

Listed Species

Ute ladies'-tresses (*Spiranthes diluvialis*)

Habitat and/or Occurrences

A Ute ladies'-tresses orchid survey was completed by Intermountain Resources (Jim Orpet and Russel Tait) on the Little Thunder LBA Tract in August of 2001. The area surveyed was within the LBA tract as applied for, the areas added under Alternative 2, and the anticipated permit amendment study area.

In preparation for Ute ladies'-tresses surveys, Mr. Orpet visited the Rocky Mountain Herbarium in Laramie, Wyoming and reviewed herbaria specimens. The herbarium provided valuable information on sites this species was known to inhabit in Wyoming. Wyoming Wildlife Magazine published an article on this species in August 1995. Several color photographs from that article were used as field references and were carried with the investigators during field surveys.

Based on discussions with persons familiar with flowering dates of this species in Wyoming and the 2001 growing season conditions, field surveys were conducted on August 16–18, 20, 24, and 25. During a first site inventory, the entire study area was surveyed for potentially suitable habitats where the orchid may occur. These surveys were completed on foot, including walking the entire lengths of ephemeral drainages documenting locations of potential habitat and searching for this species. The additional surveys concentrated on thorough searches of the potential habitats identified during the first survey. Survey conditions were generally good except for some areas being heavily grazed by livestock. No Ute ladies'-tresses orchid were found within the study area during these surveys.

Potential habitats based on hydrological criteria were rare and artificially created by CBM production discharge water. The potential for the Ute ladies'-tresses orchid to occur within this study area would be low since the potential habitat created by CBM production discharge water has existed for less than one year. Most of this area was also surveyed in 1996 and prior years, during which time no orchids or other species of concern were identified.

Effects of the Proposed Project

Issuing a federal coal lease for the Little Thunder LBA Tract under the Proposed Action or Action Alternatives is not likely to adversely affect Ute ladies'-tresses. Typical suitable habitat for this species is rare and that which does occur in the study area has just recently been artificially created by CBM production discharge water. Surveys of the existing suitable habitat have not found any Ute ladies'-tresses. Because of the ability of this species to persist below ground or above ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. If undetected populations are present, they could be lost to surface disturbing activities. If a lease is issued for this tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and consultation with USFWS would be required.

Bald eagle (*Haliaeetus leucocephalus*)

Habitat and/or Occurrences

Bald eagles are relatively common winter residents and migrants in northeastern Wyoming's PRB. Historically, this species has infrequently been seen foraging in the general vicinity of Black Thunder Mine. However, no suitable roosting habitat or concentrated prey or carrion sources for bald eagles exist in the Little Thunder study area. No bald eagles were observed in Black Thunder Mine's wildlife survey area in 2001. Qualified biologists with TWC watched for all listed species, including the bald eagle and habitats that could support them, while conducting all other wildlife species surveys. In addition, surveys for all MBHFI, including the bald eagle, were conducted by the same consultant during four days in both spring (May and June) and summer (July 2001).

Effects of the Proposed Project

Issuing a federal coal lease for the Little Thunder LBA Tract under the Proposed Action or Action Alternatives is not likely to adversely affect bald eagles. Bald eagle foraging habitat would be lost on the tract during mining and before final reclamation. The loss of any potential prey habitat would be short-term. Foraging habitat that is lost during mining would be replaced as reclamation continues on already mined out areas. Eagles may alter foraging patterns as they fly around areas of active mining activity. Potential for bald eagles to collide with or be

electrocuted by electric power lines on the mine site would be minimal due to use of raptor-safe power lines. An increase in the volume and frequency of traffic on the roads accessing Black Thunder Mine may result in an increase in vehicular collisions and roadside carcasses. This could result in an increase of bald eagle foraging along roads in this area. If a lease is issued for this tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and consultation with USFWS would be required.

Black-footed ferret (*Mustela nigripes*)

Habitat and/or Occurrences

Black-footed ferrets are rare and very unlikely to occur in the vicinity of the Little Thunder LBA Tract. The black-footed ferret is closely associated with prairie dogs, depending almost entirely upon the prairie dog for its survival. Recent surveys have found no prairie dog colonies on the Little Thunder LBA Tract (see prairie dog discussion below). One colony was found within one mile west of the LBA tract, which is within the anticipated permit amendment study area for the Black Thunder Mine, if the Little Thunder LBA Tract is leased. No evidence of ferrets have ever been recorded by qualified biologists during general or specific surveys in the Black Thunder Mine area. TWC watched for all listed species, including the black-footed ferret and habitats that could support them, while conducting all other wildlife species surveys in the area in 2001.

Effects of the Proposed Project

Issuing a federal coal lease for the Little Thunder LBA Tract under the Proposed Action or Action Alternatives is not likely to adversely affect black-footed ferrets. No prairie dog towns are currently located on the tract. In wildlife surveys conducted for more than the last 20 years by the mines in this area, none of the prairie dog towns in the General Analysis Area have harbored any black-footed ferrets. If a lease is issued for the tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

Proposed Species

Mountain plover (*Charadrius montanus*)

Habitat and/or Occurrences

Mountain plover preferred habitat consists of level, open and exceedingly grazed sites (Knopf 1996) that are generally lacking in the Little Thunder LBA study area. Even the prairie dog colonies are surrounded by rolling terrain that detracts from

the “openness” of those sites (Powder River Eagle Studies 2000). Historically, there have been a few sightings in the vicinity of the LBA tract and anticipated permit study area, but no plovers were observed during Black Thunder Mine’s wildlife survey in 2001. No surveys specifically targeting these species were conducted in 2001 by TWC, although qualified biologists watched for all listed species and habitats that could support them while conducting all other wildlife species surveys.

Effects of the Proposed Project

Issuing a federal coal lease for the Little Thunder LBA Tract under the Proposed Action or Action Alternatives is not likely to jeopardize mountain plovers. Although there have been a few sightings in the vicinity of the LBA tract, the typical suitable habitat for this species is not currently located on the tract. If a lease is issued for this LBA tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

Candidate Species

Black-tailed prairie dog (*Cynomys ludovicianus*)

Habitat and/or Occurrences

No prairie dog colonies exist within the Little Thunder LBA Tract or the area added under Alternative 2, but one colony does exist approximately one mile west of the tract configured under Alternative 2, which is within Black Thunder Mine’s anticipated permit amendment study area. No surveys specifically targeting these species were conducted in 2001 by qualified biologists with TWC, although habitats that could support federally listed species were observed and noted while conducting all other wildlife species surveys.

Effects of the Proposed Project

Issuing a federal coal lease for the Little Thunder LBA Tract under the Proposed Action or Action Alternatives is not likely to jeopardize the continued existence of prairie dogs. No prairie dog towns are currently located on the tract. If a lease is issued for this LBA tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required. Habitat where prairie dogs could establish towns would be lost during mining but would be replaced as reclamation occurs on already mined areas.

WEST ROUNDUP LBA TRACT

Listed Species

Ute ladies'-tresses (*Spiranthes diluvialis*)

Habitat and/or Occurrences

A Ute ladies'-tresses orchid survey was completed by Intermountain Resources (Jim Orpet) on the West Roundup LBA Tract in July and August of 2001 for sites not previously surveyed. The area surveyed included the lands contained within the LBA tract as applied for and the anticipated permit amendment study area.

In preparation for Ute ladies'-tresses surveys, Mr. Orpet visited the Rocky Mountain Herbarium in Laramie, Wyoming and reviewed herbaria specimens. The herbarium provided valuable information on sites this species was known to inhabit in Wyoming. Wyoming Wildlife Magazine published an article on this species in August 1995. Several color photographs from that article were used as field references and were carried with the investigators during field surveys.

Based on discussions with persons familiar with flowering dates of this species in Wyoming and the 2001 growing season conditions, initial field surveys were conducted on July 20. Additional site surveys were completed on August 14, 17, and 24. During the first site inventory, the entire study area was surveyed for potentially suitable habitats where the orchid may occur. These surveys were completed on foot, including walking the entire lengths of ephemeral drainages documenting locations of potential habitat and searching for this species. Potential habitats based on hydrological criteria are rare and artificially created by CBM production discharge water. Several stock reservoirs on ephemeral drainages occur in the study area and all are constructed earthen berms or dams. These ponds generally contain water in early spring, then dry up in the summer, although one pond in the northern part of the study area currently contains water all year due to CBM production discharge water. The additional surveys concentrated on thorough searches of the potential habitats identified during the first survey. Survey conditions were generally good except for some areas being heavily grazed by livestock. No Ute ladies'-tresses orchids were found within the study area during these surveys. The potential for the Ute ladies'-tresses orchid to occur within this study area would be rare since potential habitat created by CBM production discharge water has existed for less than one year.

Effects of the Proposed Project

Issuing a federal coal lease for the West Roundup LBA Tract under the Proposed Action or Action Alternatives is not likely to adversely affect Ute ladies'-tresses. Typical suitable habitat for this species is rare and that which does occur in the

study area has recently been artificially created by CBM production discharge water. Surveys of the existing suitable habitat have not found any Ute ladies'-tresses. Because of the ability of this species to persist below ground or above ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. If undetected populations are present, they could be lost to surface disturbing activities. If a lease is issued for this tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

Bald eagle (*Haliaeetus leucocephalus*)

Habitat and/or Occurrences

Bald eagles are relatively common winter residents and migrants in northeastern Wyoming's PRB. Historically, this species has infrequently been seen foraging in the general vicinity of North Rochelle Mine and the West Roundup LBA Tract. However, no suitable roosting habitat or concentrated prey or carrion sources for bald eagles exist in the West Roundup study area. Qualified biologists with TWC watched for all listed species, including the bald eagle and habitats that could support them, while conducting all other wildlife species surveys. In addition, surveys for all MBHFI, including the bald eagle, were conducted by the same consultant during four days in both spring (May) and summer (June and July). No bald eagles were observed in the North Rochelle Mine's wildlife survey area in 2001.

Effects of the Proposed Project

Issuing a federal coal lease for the West Roundup LBA Tract under the Proposed Action or Action Alternatives is not likely to adversely affect bald eagles. Bald eagle foraging habitat would be lost on the tract during mining and before final reclamation. The loss of any potential prey habitat would be short-term. Foraging habitat that is lost during mining would be replaced as reclamation continues on already mined out areas. Eagles may alter foraging patterns as they fly around areas of active mining activity. Potential for bald eagles to collide with or be electrocuted by electric power lines on the mine site would be minimal due to use of raptor-safe power lines. An increase in the volume and frequency of traffic on the roads accessing North Rochelle Mine may result in an increase in vehicular collisions and roadside carcasses. This could result in an increase of bald eagle foraging along roads in this area. If a lease is issued for this tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and consultation with USFWS would be required.

Black-footed ferret (*Mustela nigripes*)

Habitat and/or Occurrences

Black-footed ferrets are rare and very unlikely to occur in the vicinity of the West Roundup LBA Tract. The black-footed ferret is closely associated with prairie dogs, depending almost entirely upon the prairie dog for its survival. Recent surveys indicate no prairie dog colonies are located within the West Roundup LBA Tract (see prairie dog discussion below). One small (less than three acres in area) colony is located within the area added under Alternatives 2 and 3, in the SE¼ of Section 5, T.42N., R.70W. One other colony is located just over a half mile south of the LBA tract, in the NE¼ of Section 18, T.42N., R.70W. No evidence of ferrets have ever been recorded by qualified biologists during general or specific surveys in the West Roundup Mine area. TWC watched for all listed species, including the black-footed ferret and habitats that could support them, while conducting all other wildlife species surveys in the area in 2001.

Effects of the Proposed Project

Issuing a federal coal lease for the West Roundup LBA Tract under the Proposed Action or Action Alternatives is not likely to adversely affect black-footed ferrets. There are no prairie dog towns of adequate size currently located on the tract as proposed or the alternative tract configurations. In wildlife surveys conducted for more than the last 20 years by the mines in this area, none of the prairie dog towns in the General Analysis Area have harbored any black-footed ferrets. If a lease is issued for the tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

Proposed Species

Mountain plover (*Charadrius montanus*)

Habitat and/or Occurrences

Mountain plover preferred habitat consists of level, open and exceedingly grazed sites (Knopf 1996) that are generally lacking in the West Roundup LBA study area. There have been no sightings of mountain plover in the vicinity of the LBA tract and anticipated permit amendment study area. No plovers were observed in the North Rochelle Mine wildlife survey area during the 2001 annual wildlife monitoring report period. No surveys specifically targeting these species were conducted in 2001 by TWC, although qualified biologists watched for all listed

species and habitats that could support them while conducting all other wildlife species surveys.

Effects of the Proposed Project

Issuing a federal coal lease for the West Roundup LBA Tract under the Proposed Action or Action Alternatives is not likely to jeopardize mountain plovers. There have been no sightings in the vicinity of the LBA tract, and the typical suitable habitat for this species is not currently located on the tract. If a lease is issued for this LBA tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

Candidate Species

Black-tailed prairie dog (*Cynomys ludovicianus*)

Habitat and/or Occurrences

Recent wildlife surveys by TWC indicate that no prairie dog colonies exist within the West Roundup LBA Tract as applied for, although one small (less than three acres) colony is located within the area added under Alternatives 2 and 3, and one other colony is located just over a half mile south of the LBA tract. No surveys specifically targeting these species were conducted in 2001 by qualified biologists with TWC, although habitats that could support federally listed species were observed and noted while conducting all other wildlife species surveys.

Effects of the Proposed Project

Issuing a federal coal lease for the West Roundup LBA Tract under the Proposed Action is not likely to jeopardize the continued existence of prairie dogs because no prairie dog towns are located on the tract as proposed. One small colony (less than three acres in area) is currently located within the area added under Alternatives 2 and 3, in the SE $\frac{1}{4}$ of Section 5, T.42N., R.70W. This colony, which could be adversely affected if that area is leased, is located within the existing mine permit area for the North Rochelle Mine. Habitat where prairie dogs could establish towns would be lost during mining but would be replaced as reclamation occurs on already mined areas. If a lease is issued for this LBA tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and USFWS consultation would be required.

WEST ANTELOPE LBA TRACT

Listed Species

Ute ladies'-tresses (*Spiranthes diluvialis*)

Habitat and/or Occurrences

Suitable habitat within the West Antelope LBA study areas was traversed during the time of actual flowering of the known population of the Ute ladies'-tresses orchid on Antelope Creek in Northern Converse County. Prefield work involved a visit to a known population of the orchid to verify the correct phenological state (flowering) of the orchid. The existing orchid population is located near the Ross Road on Antelope Creek approximately 25 miles upstream of Antelope Mine. Topographical and wetland delineation maps for the study area were reviewed to identify all significant drainages that may contain the orchid. Suitable habitat factors included less steep stream banks, light soil texture and well drained soils, close lateral or vertical distance to perennial water source during the flowering period, lack of plant competition, lack of general soil alkalinity/salinity, and current or historical management practices that did not promote overgrazing and extensive use of riparian areas.

Areas of suitable habitat, the majority of which are found along the Antelope Creek drainage, were surveyed by BKS Environmental (Brenda Schladweiler) in August 2001. No individuals of the Ute ladies'-tresses orchid were located during those surveys.

Effects of the Proposed Project

Issuing a federal coal lease for the West Antelope LBA Tract under the Proposed Action or Alternatives 2 or 3 is not likely to adversely affect Ute ladies'-tresses. Typical suitable habitat for this species does not exist on the tract outside of the Antelope Creek valley. ACC would not disturb Antelope Creek and an adjacent buffer zone in the process of mining the West Antelope tract or their existing coal leases. If a lease is issued for this tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and consultation with USFWS would be required.

Bald eagle (*Haliaeetus leucocephalus*)

Habitat and/or Occurrences

Bald eagles are relatively common winter residents and migrants in northeastern Wyoming's PRB. Historically, this species has infrequently been seen foraging in the general vicinity of the West Antelope LBA Tract and perched in cottonwood trees along Antelope Creek, which passes through the LBA tract and adjacent Antelope Mine. ACC would not disturb Antelope Creek and an adjacent buffer

zone in the process of mining the West Antelope LBA Tract or their existing coal leases. No bald eagle roosts have been documented in the vicinity of the proposed lease area. The nearest known communal bald eagle roosts are over six miles to the east and southwest of the LBA tract. No unique or concentrated sources of carrion or prey occur in the study area, so foraging bald eagles would not be attracted to the area in great numbers. A few isolated bald eagle nesting attempts have been recorded in the region, but none have been near the West Antelope LBA Tract.

During a February 28, 2001 survey conducted for the North Antelope/Rochelle Complex by TWC, three adult bald eagles were seen perching in a small cottonwood tree along Horse Creek in the NE¼ of Section 22, T.41N., R.71W. Because of the small stature of the tree and the small number of eagles, this was not classified as a bald eagle roost. TWC also reported the following bald eagle observations within the Wildlife Section of Antelope Mine's 2001 WDEQ/LQD Report:

- Two adult eagles were seen feeding on a mule deer carcass on reclaimed lands in Section 14, T.40N., R.71W. in the month of January.
- On February 19, two adult eagles were seen perched in the Antelope Creek riparian corridor in Section 31, T.41N., R.70W. The same day, an immature eagle was seen perched on a power pole along Antelope Creek in Section 32, T.41N., R.70W, an adult bird was seen perched on the ground near a mule deer carcass in Section 12, T.40N., R.71W., and an immature eagle was observed flying over the rough breaks in Section 24, T.40N., R.71W.
- On March 7, two adults and one immature bird were recorded perched on a ridge along the extreme east edge of the mine's two-mile monitoring perimeter.
- On March 17, an immature eagle was seen perched in a cottonwood tree in the Antelope Creek riparian corridor in Section 31, T.41N., R.70W., an adult eagle was observed perched in a cottonwood tree in the Antelope Creek riparian corridor in Section 32, T.41N., R.70W., three adults were seen perched in trees in Section 33, T.41N., R.70W., and an adult bird was seen perched on a hilltop in Section 12, T.40N., R.71W.
- The last bird recorded by TWC in 2001 was observed on April 1, which was an adult bird perched on a power pole in Section 12, T.40N., R.71W.

Effects of the Proposed Project

Issuing a federal coal lease for the West Antelope LBA Tract under the Proposed Action or Alternatives 2 or 3 is not likely to adversely affect bald eagles. Bald eagle foraging habitat would be lost on the tract during mining and before final reclamation. The loss of any potential prey habitat would be short-term. The Antelope Mine and West Antelope LBA Tract areas do not provide any reliable or concentrated food sources for eagles, and the loss of any potential foraging habitat would be short-term. Foraging habitat that is lost during mining would be

replaced as reclamation continues on already mined out areas. Eagles may alter foraging patterns as they fly around areas of active mining activity. Bald eagles could potentially nest or roost in the LBA study area, but neither activity has been documented on the undisturbed tract. ACC would not disturb Antelope Creek and an adjacent buffer zone in the process of mining the West Antelope LBA Tract or their existing coal leases. Cottonwood trees located within the Antelope Creek buffer zone would not be affected and would be available as perching and nesting sites. Cottonwood trees outside of the buffer zone along Antelope Creek would be replaced with plantings along Antelope Creek, Spring Creek, and other reclaimed drainages, eventually restoring perching and nesting sites. Potential for bald eagles to collide with or be electrocuted by electric power lines on the mine site would be minimal due to use of raptor-safe power lines. An increase in the volume and frequency of traffic on the roads accessing Antelope Mine may result in an increase in vehicular collisions and roadside carcasses. This could result in an increase of bald eagle foraging along roads in this area. If a lease is issued for this tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and consultation with USFWS would be required.

Black-footed ferret (*Mustela nigripes*)

Habitat and/or Occurrences

Black-footed ferrets are rare and very unlikely to occur in the vicinity of the West Antelope LBA Tract. Prairie dogs are the main food source of black-footed ferrets, and few ferrets have been collected away from prairie dog colonies. Although the proposed lease area and its perimeter harbor some small prairie dog colonies, no evidence of ferrets has been recorded in that vicinity during general or specific ferret surveys conducted over the last 23 years (1978–2001) by the USFS and wildlife consultants (Powder River Eagle Studies and TWC). The USFS conducted surveys on all prairie dog colonies in the TBNG throughout the 1980s. The only evidence of black-footed ferret presence resulting from any survey in the region was a single skull collected during baseline studies for Antelope Mine in 1979 in a prairie dog colony roughly three miles east of the LBA tract. That colony was poisoned in 1982, but has since been recolonized. The lack of black-footed ferret observations or sign in the vicinity of the West Antelope LBA Tract in the last 20 years suggests they are not likely to occur there.

Effects of the Proposed Project

Issuing a federal coal lease for the West Antelope LBA Tract under the Proposed Action or Alternatives 2 or 3 is not likely to adversely affect black-footed ferrets. Ferrets inhabit prairie dog colonies, so mining of lands in the study area could potentially impact these predators. However, in wildlife surveys conducted for more than the last 20 years by the mines in this area, none of the prairie dog towns in the General Analysis Area have harbored any black-footed ferrets. If a

lease is issued for the tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval and to ensure that no ferrets are adversely affected, appropriate surveys and consultation with USFWS would be required prior to disturbing any prairie dog colonies on the tract.

Proposed Species

Mountain plover (*Charadrius montanus*)

Habitat and/or Occurrences

Annual surveys for mountain plovers have been conducted at the Antelope Mine from 1982 through 2000. Additional intensive studies were conducted from 1985 through 1988 (Parrish 1988, Oelklaus 1989). Antelope Coal Company's staff biologist conducted the annual surveys from 1982 through 1993 and TWC (formerly Powder River Eagle Studies) has conducted all surveys after 1993. Each year, the survey area includes the Antelope Mine permit area and a half-mile perimeter, with special emphasis in areas where birds have been seen in the past (including areas beyond that survey area). The eastern three-quarters of the West Antelope LBA Tract has been surveyed in most years since 1982. Surveys for migrant and nesting mountain plovers occurred from early spring through late summer each year. Personnel have conducted vehicular and pedestrian surveys and searches of all known former use areas and potential new use areas each year. Data collected during surveys included number of birds, age (when possible), location, activity and habitat.

Results of those studies have demonstrated that the mountain plover is a regular migrant and summer resident in the vicinity of Antelope Mine and portions of the LBA tract. Over time, the birds tended to be observed foraging and nesting in roughly the same areas from year to year. In recent years (1994 to 2001), two to three pairs have nested in a small (approximately 88 acres) black-tailed prairie dog colony that straddles the southern boundary of the LBA tract. That colony also appears to be a regular late summer staging area for migrating mountain plovers. Although the entire 88-acre prairie dog colony appears to provide suitable foraging and nesting habitat, mountain plovers have regularly been seen in only about 15 of the 88 total acres of colony; five acres of which overlap the southern edge of the LBA tract. Other sightings of mountain plovers on the proposed lease area were made in a small (approximately 14 acres) prairie dog colony near the north-central boundary of the tract. A single adult was seen foraging within that colony one time during each of the last two spring surveys. Historically, mountain plovers have been observed along the northeastern edge of the LBA tract as proposed, where it meets the southwest corner of the area added under Alternative 2. However, plovers were observed in that area only two of the last 19 years, nesting there only one year. The last sighting of mountain plovers in the Alternative 2

area occurred in 1990. The area has since become largely overgrown with sagebrush and is no longer suitable plover habitat.

One or two pairs of mountain plovers have occasionally nested in a small (approximately 126 acres) prairie dog colony just beyond the east-central edge of the LBA tract. The majority of that prairie dog colony was impacted by mining operations after the 2000 breeding season, but approximately three acres remained intact and active following that disturbance. In May 2001, Antelope Mine and USFWS agreed upon a mitigation plan for the portion of the colony that had been used by mountain plovers over time, and that plan will be finalized in the near future. A comprehensive review of nearly 20 years' of data on mountain plover use in the vicinity of the Antelope Mine also led to the reclassification of some long-term inactive areas as "Former Use Areas." However, ACC will continue to include those areas and the West Antelope LBA Tract study area in annual monitoring for the Antelope Mine. Any former or new use areas within the final configuration of the West Antelope LBA Tract will be included in a USFWS-approved mitigation plan that will be incorporated into Antelope Mine's WDEQ/LQD mine permit.

Effects of the Proposed Project

Issuing a federal coal lease for the West Antelope LBA Tract under the Proposed Action or Alternatives 2 or 3 would impact typical suitable habitat for mountain plover that is currently located on the tract, but would not be likely to jeopardize the species in this area. Mountain plovers regularly nest and stage in a black-tailed prairie dog colony that straddles the southern boundary of the tract. Potential impacts to mountain plovers would include loss of habitat and displacement to suitable habitat nearby. However, depending on the timing of the disturbance, such impacts may be mitigated to some extent by natural circumstances.

The mountain plovers that frequent the LBA tract are almost exclusively found in a small prairie dog colony that straddles the southern boundary of the tract. The birds typically use a 15-acre portion of the colony of which about five acres occur on the LBA tract. It is possible that during the interim between applying for the lease and mining the LBA, the prairie dog colony may naturally expand. If the expansion was to the south, it could increase the quantity of plover habitat beyond the LBA boundary prior to any losses. If prairie dogs do not voluntarily expand to the south prior to mining the LBA tract, those animals that survive may do so after the initial development activities begin. Mountain plovers may also choose to move from this prairie dog colony to a similar colony approximately one mile to the southeast. However, such a move could result in conflicts and competition for resources with the mountain plovers that already inhabit that colony. Alternatively, mountain plovers may move from the prairie dog colony near the south boundary of the LBA tract to a similar area of naturally sparse

vegetation roughly one mile due south of the current colony. Adult and young mountain plovers have infrequently been seen in that area in recent years.

TWC states the following within Antelope Mine's 2001 Annual Wildlife Monitoring Report to the WDEQ/LQD: "Given the species' willingness to return to areas disturbed by mining, the long-term stability of the number of breeding pairs in the area, and the quantity of apparently suitable but unoccupied habitat in the area, it seems that mining operations at Antelope are not adversely impacting mountain plovers".

If a lease is issued for this LBA tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys and consultation with USFWS would be required. Antelope Mine's currently approved mining and reclamation plan and migratory bird mitigation plan both include measures designed to reduce potential impacts to this species and guide the reclamation of its habitat. Antelope Mine has worked with USFWS to revise and refine the specific measures to be used during protection and reclamation efforts, as well as the acreage to be reclaimed. A new plan was recently developed and is awaiting final approval by the USFWS prior to being incorporated into Antelope Mine's permit document. That plan would be updated and submitted to the USFWS and WDEQ/LQD for approval if the West Antelope LBA Tract is leased and approved for mining.

Candidate Species

Black-tailed prairie dog (*Cynomys ludovicianus*)

Habitat and/or Occurrences

In 2000, TWC mapped the current acreage of prairie dog colonies in the vicinity of the Antelope Mine by walking the perimeters of colonies and delineating them on topographic maps. Approximately 110 acres of black-tailed prairie dog colonies, in four small colonies, are currently present on and within a half mile of the West Antelope LBA Tract as proposed and the area added by Alternative 2. Two colonies are included in, or overlap the LBA tract under the Proposed Action; one in the north-central part and one in the south-central part. Both areas were described in the discussion of mountain plovers above. A third colony covers roughly 2.5 acres in the southwest corner of the area added by Alternative 2. That colony was established in 2000, presumably by survivors of the poisoning efforts that apparently took place in the northern-most colony within the LBA tract in the fall/winter of 1999. The fourth colony consists of the remains of a colony that was disturbed by mining just beyond the east-central boundary of the LBA tract. In

addition to these four colonies in the immediate vicinity of the West Antelope LBA Tract, at least four more small colonies are known to exist within the same complex (4.7-mile radius) in that area.

Effects of the Proposed Project

If a federal coal lease is issued for the West Antelope LBA Tract under the Proposed Action or Alternative 2, there would likely be direct and indirect effects on individuals and colonies of the black-tailed prairie dog because all or portions of three small colonies are currently located on the tract and lands added under Alternative 2: two on the tract as proposed and one on the Alternative 2 area, but would not be likely to jeopardize the continued existence of this species in this area. Much of the largest colony lies outside of the proposed lease area. The majority of the prairie dog colony acreage on the tract would be lost during the mining process. It may be possible to preserve some portions in the largest colony at the southern edge of the tract. Any surviving animals could then serve as a source of prairie dogs for re-colonization of the mine area during and after reclamation.

If a lease is issued for the tract, mining operations could not be initiated until the MLA mining plan and the state mining and reclamation permit are approved. Prior to permit approval, additional surveys would be required. The results of such surveys would be reviewed by USFWS before mining could proceed. Habitat where prairie dogs could establish towns would be lost during mining but would be replaced as reclamation occurs on already mined areas.

REGULATORY REQUIREMENTS AND MITIGATION

The issuance of a Federal coal lease grants the lessee the exclusive rights to mine the coal, subject to the terms and conditions of the lease. Lease ownership is necessary for mining federal coal, but lease ownership does not authorize mining operations. No operations can occur on the leased lands until the approval of both the MLA mining plan and the state mining and reclamation permit under the applicable Wyoming state regulations (Section 1.2). If the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts are leased, they would be maintenance leases for existing mines with currently approved MLA mining plans and state mining and reclamation permits. In the case of maintenance leases, the existing MLA mining plans and state mining and reclamation plans must be modified to include the newly leased areas before they can be mined.

As part of the application and approval process for MLA mining plans and state mining and reclamation permits, coal lessees are required to conduct additional surveys and other evaluations as needed to ensure compliance with the ESA. The USFWS will again be consulted during the permit application review process.

Permit applications are based on an actual detailed site-specific mining and reclamation proposal and the most current survey information.

The following is a partial list of measures that are required as part of the mining and reclamation permits:

- avoiding bald eagle disturbance;
- restoring bald eagle foraging areas disturbed by mining;
- restoring mountain plover habitat;
- using raptor safe power lines;
- surveying for Ute ladies'-tresses if habitat is present;
- surveying for mountain plover if habitat is present; and
- surveying for black-footed ferrets in prairie dog towns potentially affected by mining.

CUMULATIVE IMPACTS

Existing activities in the PRB that are contributing to cumulative effects to T&E plant and wildlife species include surface coal mining; conventional and CBM oil and gas development; uranium mining; sand, gravel, and scoria mining; ranching; agriculture; road, railroad, and power plant construction; recreational activities; and rural and urban housing development. Mining and construction activities and urban development tend to have more intense impacts on fairly localized areas, while ranching, recreational activities, and oil and gas development tend to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. The net area of energy disturbance in the Wyoming PRB is increasing overall; however, as new areas of disturbance are added, mined-out areas are restored and reclaimed, and oil and gas well sites are reclaimed when depleted oil and gas wells are abandoned.

The total acreage affected by coal mining and oil and gas development would not be disturbed simultaneously, because development would occur over the life of the operations. Some of the disturbed acreage would be reclaimed or would be in the process of being reclaimed when new disturbances are initiated. In the near future, the amount of disturbed T&E plant and wildlife habitats is likely to increase, although reclamation would eventually overtake new development.

Cumulative effects would also occur to T&E plant and wildlife resources as a result of indirect impacts. One factor is the potential import and spread of noxious weeds around roads and facilities. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts. If weed mitigation and preventative procedures are applied to all construction and reclamation practices, the impact of noxious weeds on T&E plants and wildlife would be minimized.

In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ/LQD). The majority of the approved species are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Establishment of noxious weeds and alteration of vegetation in reclaimed areas has the potential to alter T&E plant and wildlife habitat composition and distribution. As a result, shifts in habitat composition or distribution may affect T&E plant and wildlife species in the PRB.

USFS REGION 2 SENSITIVE AND MANAGEMENT INDICATOR SPECIES

Species that have been identified by the Regional Forester as sensitive species and management indicator species (MIS) must be considered for the three LBA tracts that include USFS lands (NARO North, Little Thunder, and West Roundup).

USFS REGION 2 SENSITIVE SPECIES

The USFS classifies species as “Sensitive” when they meet one or more of the following three criteria: 1) the species is declining in numbers or occurrences, and evidence indicates it could be proposed for federal listing as threatened or endangered if action is not taken to reverse or stop the downward trend; 2) the species’ habitat is declining, and continued loss could result in population declines that lead to federal listing as threatened or endangered if action is not taken to reverse or stop the decline; and 3) the species’ population or habitat is stable but limited. In addition to these criteria, a ranking system is used to identify species for Sensitive status, which is outlined in USFS Manual 2670-2671. Table 1 lists species that have been identified as “Sensitive” for USFS Region 2.

The USFS Douglas Ranger District has reviewed the entire list of animal and plant sensitive species for USFS Region 2 and eliminated those species that occur on the TBNG, but are outside of any effects of the proposal (geographically or biologically), from further review. The species listed in Table 2 will be evaluated for potential effects from the proposed actions and alternatives. These species have been identified as potentially inhabiting the project planning area or potentially affected by the proposed action.

HABITAT AND OCCURRENCES ON AND NEAR THE NARO NORTH, LITTLE THUNDER, AND WEST ROUNDUP LBA TRACTS

Site-specific data on the occurrence of USFS sensitive species on the NARO North, Little Thunder, and West Roundup LBA Tracts were obtained from WDEQ/LQD permit applications and annual reports for the North Antelope/Rochelle Complex, Black Thunder Mine, North Rochelle Mine, and other mines in this area. Wildlife surveys have been conducted on the LBA tracts during baseline and annual monitoring surveys for the existing mines, which include each mine’s current permit area and a two-mile surrounding area. In addition, PRCC conducted wildlife baseline investigations in 2000 on the NARO North LBA Tract. Only limited fisheries and aquatics studies have been conducted for the NARO North, Little Thunder, and West Roundup LBA Tracts. Fish sampling was conducted during baseline studies for the North Antelope and Rochelle Mines in the late 1970s, the North Rochelle Mine in 1980-81, and the Little Thunder LBA Tract in

Table 1. USFS Region 2 Sensitive Species List (provided by USFS June 2002).

Latin Name	Common Name	Status on TBNG
PLANTS		
<i>Pyrrocoma carthamoides</i> var. <i>subsquarqrosus</i>	Absaroka goldenweed	
<i>Malaxis brachypoda</i>	Adder's-mouth	
<i>Parthenium alpinum</i>	Alpine feverfew	
<i>Eriophorum altaicum</i> var. <i>neogaeum</i>	Altai cottongrass	
<i>Adenocaulon bicolor</i>	American trail plant	
<i>Corallorhiza odontorhiza</i>	Autumn coralroot	
<i>Salix serissima</i>	Autumn willow	
<i>Austragalus proximus</i>	Aztec milk-vetch	
<i>Gilia penstemonoides</i>	Beardtongue gilia	
<i>Sanguinaria canadensis</i>	Bloodroot	
<i>Eriogonum brandegei</i>	Brandegee wild-buckwheat	
<i>Penstemon caryi</i>	Cary beardtongue	
<i>Cypripedium fasciculatum</i>	Clustered lady's-slipper	
<i>Aletes humilis</i>	Colorado aletes	
<i>Gaura neomexicana coloradoensis</i>	Colorado butterfly plant	
<i>Ptilagrostis mongholica porteri</i>	Colorado false needle grass	
<i>Frasera coloradensis</i>	Colorado gentian	
<i>Machaeranthera coloradoensis</i>	Colorado tansy-aster	
<i>Scirpus cyperinus</i>	Cottongrass bulrush	
<i>Townsendia condensate</i> var. <i>anomala</i>	Cushion townsend-daisy	
<i>Eriogonum visherii</i>	Dakota wild-buckwheat	
<i>Phacelia scopulina</i> var. <i>submutica</i>	Debeque scorpion-weed	
<i>Penstemon degeneri</i>	Degener's penstemon	
<i>Asclepias unicalis</i>	Dwarf milkweed	
<i>Equisetum scirpoides</i>	Dwarf scouring-rush	
<i>Carex alopecoidea</i>	Fox-tail sedge	
<i>Lesquerella fremontii</i>	Fremont's bladderpod	
<i>Potentilla effusa</i> var. <i>rupicola</i>	Front Range cinquefoil	
<i>Epipactis gigantea</i>	Giant helleborine	
<i>Ipomopsis globularis</i>	Globe gilia	
<i>Carex intumescens</i>	Greater bladder sedge	
<i>Viola selkirkii</i>	Great-spurred violet	
<i>Primula egaliksensis</i>	Greenland primrose	
<i>Austragalus anisus</i>	Gunnison milk-vetch	
<i>Festuca hallii</i>	Hall's fescue	
<i>Sullivantia hapemanii</i> var. <i>purpusii</i>	Hapeman's coolwort (Colorado)	
<i>Sullivantia hapemanii</i> var. <i>hapemanii</i>	Hapeman's coolwort (Wyoming)	
<i>Penstemon harringtonii</i>	Harrington's beardtongue	
<i>Salix lanata calcicola</i>	Hulten wooly willow	
<i>Ipomopsis spicata robruthii</i>	Kirkpatrick ipomopsis	
<i>Aquilegia laramiensis</i>	Laramie columbine	
<i>Sphaeromeria simplex</i>	Laramie false sagebrush	
<i>Platanthera orbiculata</i>	Large round-leaf orchid	

Table 1. USFS Region 2 Sensitive Species List (provided by USFS June 2002)
(Continued).

Latin Name	Common Name	Status on TBNG
<i>Carex livida</i>	Livid sedge	
<i>Carex pedunculata</i>	Long-stalk sedge	
<i>Muhlenbergia glomerata</i>	March muhly	
<i>Astragalus molybdenus</i>	Molybdenum milk-vetch	
<i>Salix myrtillifolia</i> var. <i>myrtillifolia</i>	Myrtle-leaf willow	
<i>Parrya nudicaulis</i>	Naked-stem wallflower	
<i>Botrychium lineare</i>	Narrow-leaved moonwort	
<i>Arnica lonchophylla</i>	Northern arnica	
<i>Rubus arcticus acaulis</i>	Northern blackberry	
<i>Ipomopsis polyantha</i> var. <i>polyantha</i>	Pagosa skyrockets	
<i>Lesquerella pruinosa</i>	Pagosa Springs bladderpod	
<i>Botrychium campestre</i>	Pale moonwort	
<i>Agoseris lackschewitzii</i>	Pink agoseris	
<i>Botrychium campestre</i>	Prairie moonwort	
<i>Arctostaphylos rebra</i>	Red manzanita	
<i>Botrychium echo</i>	Reflected moonwort	
<i>Astragalus ripleyi</i>	Ripley's milk-vetch	
<i>Neoparrya lithophila</i>	Rock-loving aletes	
<i>Scirpus rollandii</i>	Rolland's bulrush	
<i>Drosera rotundifolia</i>	Round-leaf sundew	
<i>Amerorchis rotundifolia</i>	Round-leaved orchid	
<i>Chenopodium cycloides</i>	Sandhill goosefoot	
<i>Armeria maritime</i> var. <i>siberica</i>	Sea pink	
<i>Shoshonea pulvinata</i>	Shoshonea	
<i>Draba smithii</i>	Smith's whitlow-grass	
<i>Braya glabella</i>	Smooth rockcress	
<i>Aster mollis</i>	Soft aster	
<i>Adiantum capillus-veneris</i>	Southern maidenhair fern	
<i>Ambrosia linearis</i>	Streaked ragweed	
<i>Lycopodium complanatum</i>	Trailing clubmoss	
<i>Lycopodium dendroideum</i>	Treelike clubmoss	
<i>Botrychium ascendens</i>	Upward-lobe moonwort	
<i>Mimulus gemmiparus</i>	Weber's monkey-flower	
<i>Ipomopsis aggregata</i>	Weber's scarlet-gilia	
<i>Descurainia torulosa</i>	Wind River tansy-mustard	
<i>Erigeron lanatus</i>	Wooly fleabane	
FISH		
<i>Hybopsis aestivalis tetranemus</i>	Chub, Arkansas River speckled	
<i>Platygobio gracilis</i>	Chub, flathead	K
<i>Hybopsis meeki</i>	Chub, sicklefin	
<i>Phoxinus erythrogaster</i>	Dace, southern red belly	
<i>Etheostoma cragini</i>	Darter, Arkansas	
<i>Fundulus diaphanus</i>	Killfish, banded	
<i>Notropis girardi</i>	Shiner, Arkansas River	
<i>Cyleptus elongatus</i>	Sucker, blue	
<i>Fundulus sciadicus</i>	Topminnow, plains	K

Table 1. USFS Region 2 Sensitive Species List (provided by USFS June 2002)
(Continued).

Latin Name	Common Name	Status on TBNG
------------	-------------	----------------

<i>Oncorhynchus</i> (=Salmo) <i>clarki pleuriticus</i>	Trout, Colorado River cutthroat	
<i>Oncorhynchus</i> (=Salmo) <i>clarki virginalis</i>	Trout, Rio Grande cutthroat	
<i>Oncorhynchus</i> (=Salmo) <i>clarki bouveri</i>	Trout, Yellowstone cutthroat	
INVERTEBRATES		
<i>Speyeria idalia</i>	Butterfly, regal fritillary	
<i>Phyciodes batesii</i>	Butterfly, tawny crescent	S
<i>Acronicta albarufa</i>	Moth, albarufan dagger	
<i>Ethmia monachella</i>	Moth, lost ethmiid	
<i>Decodes stevensi</i>	Moth, Stevens' tortricid	
<i>Discus shimeki cockerellii</i>	Snail, Cockerell's striate disc	
<i>Oreohelix strigosa cooperi</i>	Snail, Cooper's Rocky Mountain	
<i>Acroloxus coloradensis</i>	Snail, Rocky Mountain capshell	
REPTILES AND AMPHIBIANS		
<i>Rana pipiens</i>	Frog, northern leopard	K
<i>Rana pretiosa</i>	Frog, spotted	
<i>Rana sylvatica</i>	Frog, wood	
<i>Phrynosoma cornutum</i>	Lizard, Texas horned	
<i>Ambystoma tigrinum</i>	Salamander, tiger	K
<i>Storeria occipitomeoculatae pahasapae</i>	Snake, Black Hills redbellied	
<i>Arizona elegans blanchardi</i>	Snake, Kansas glossy	
<i>Tropidoclonion lineatum</i>	Snake, lined	
<i>Lampropeltis triangulum multistrata</i>	Snake, pale milk	S
<i>Diadophis punctatus arnyi</i>	Snake, prairie ringneck	
<i>Leptotyphlops dulcis</i>	Snake, Texas blind	
<i>Rhinocheilus lecontei tessellatus</i>	Snake, Texas longnosed	
<i>Bufo boreas boreas</i>	Toad, boreal western	
<i>Kinosternon flavescens flavescens</i>	Turtle, yellow mud	
MAMMALS		
<i>Euderma maculatum</i>	Bat, spotted	
<i>Plecotus townsendii</i>	Bat, Townsend's big-eared	K
<i>Martes pennanti</i>	Fisher	
<i>Vulpes velox</i>	Fox, swift	K
<i>Thomomys fuscus</i>	Gopher, Wyoming pocket	
<i>Spermophilus tridecemlineatus alleni</i>	Ground squirrel, Allen's thirteen-lined	
<i>Felis lynx canadensis</i>	Lynx, North American	
<i>Marmota flaviventris notioros</i>	Marmot, Wet Mountains yellow-bellied	
<i>Martes americana</i>	Marten	
<i>Zapus hudsonicus preblei</i>	Mouse, Prebles' meadow jumping	
<i>Myotis thysanodes pahasapensis</i>	Myotis, fringe-tailed	S
<i>Cynomys ludovicianus</i>	Prairie dog, black-tailed	K
<i>Bassariscus astutus</i>	Ringtail	
<i>Sorex nanus</i>	Shrew, dwarf	
<i>Microsorex hoyi montanus</i>	Shrew, pygmy	
<i>Conepatus mesoleucus figginsi</i>	Skunk, Colorado hognosed	

Table 1. USFS Region 2 Sensitive Species List (provided by USFS June 2002)
(Continued).

Latin Name	Common Name	Status on TBNG
<i>Microtus richardsoni</i>	Vole, water	
<i>Mustela rixosa</i>	Weasel, least	

Appendix G

<i>Gulo gulo luscus</i>	Wolverine, North American	
BIRDS		
<i>Botaurus lentiginosus</i>	Bittern, American	U
<i>Grus canadensis</i>	Crane, greater sandhill	
<i>Coccyzus americanus</i>	Cuckoo, western yellow-billed	K
<i>Numenius americanus</i>	Curlew, long-billed	K
<i>Histrionicus histrionicus</i>	Duck, harlequin	
<i>Contopus borealis</i>	Flycatcher, olive-sided flycatcher	
<i>Epidonax trailii extimus</i>	Flycatcher, southwestern willow	
<i>Accipiter gentilis apache</i>	Goshawk, Apache northern	
<i>Accipiter gentilis</i>	Goshawk, northern	K
<i>Tympanachus phasianellus columbianus</i>	Grouse, Columbian sharp-tailed	
<i>Buteo regalis</i>	Hawk, ferruginous	K
<i>Plegadis chihi</i>	Ibis, white-faced	K
<i>Regulus satrapa</i>	Kinglet, golden-crowned	
<i>Gavia immer</i>	Loon, common	K
<i>Progne subis</i>	Martin, purple	
<i>Falco columbarius</i>	Merlin	K
<i>Sitta pygmaea</i>	Nuthatch, pygmy	
<i>Pandion haliaetus</i>	Osprey	U
<i>Aegolius funereus</i>	Owl, boreal	
<i>Otus flammeolus</i>	Owl, Flammulated	
<i>Athene cunicularia</i>	Owl, western burrowing	K
<i>Tympanachus pallidicinctus</i>	Prairie chicken, lesser	
<i>Charadrius montanus</i>	Plover, mountain	K
<i>Charadrius alexandrinus nivosus</i>	Plover, western snowy	
<i>Tympanachus cupido</i>	Prairie chicken, greater	
<i>Bartramia longicauda</i>	Sandpiper, upland	K
<i>Lanius ludovicianus</i>	Shrike, loggerhead	K
<i>Ammodramus bairdii</i>	Sparrow, Baird's	K
<i>Passerella iliaca</i>	Sparrow, fox	K
<i>Cygnus buccinator</i>	Swan, trumpeter	
<i>Cypseloides niger</i>	Swift, black	
<i>Chlidonias niger</i>	Tern, black	K
<i>Picoides tridactylus</i>	Woodpecker, three-toed	
<i>Picoides arcticus</i>	Woodpecker, black-backed	
<i>Melanerpes lewis</i>	Woodpecker, Lewis'	K
Status Codes:		
K = Known occurrence in vicinity. Date of last observation indicates that species still occurs in area.		
N = No recent observations; surveys recently completed; may be historic records; potential habitat possible.		
S = Suspected occurrence. May be historic records but no recent observations. Suitable habitat likely.		
U = Unknown occurrence, more surveys may be needed, may be historic records, potential habitat possible.		

Table 2. USFS Region 2 Listed Sensitive Species That May Occur in the TBNG or be Impacted by Leasing the NARO North, Little Thunder, and West Roundup LBA Tracts (provided by USFS Douglas Ranger District, September 2002).

Name	Status in TBNG	Habitat and Occurrence in TBNG
AMPHIBIANS AND REPTILES		
Northern leopard frog <i>Rana pipens</i>	K	Shallow, permanent, or semi-permanent standing water with at least some emergent vegetation (Wagner 1997). Deeper lakes or ponds with well-oxygenated water that does not freeze at bottom required for over wintering (Wagner 1997). Found throughout Wyoming (Baxter and Stone 1980, Luce et al. 1999).
Tiger salamander <i>Ambystoma tigrinum</i>	K	Sagebrush plains, forests, and meadows near water including riparian areas, streams, wetlands, ponds. Relatively common throughout Wyoming (Baxter and Stone 1980, Luce et al. 1999), documented during annual wildlife surveys for the Antelope Mine, Black Thunder Mine, and North Rochelle Mine.
FISH		
Flathead chub <i>Hybopsis gracilis</i>	S	Documented in Antelope Creek and other tributary drainages during late 1970's water resource surveys.
Plains topminnow <i>Fundulus sciadicus</i>	U	Species known from northeast Colorado and eastern Wyoming.
Banded killifish <i>Fundulus diaphanus</i>	U	Species known from northeast Nebraska.
MAMMALS		
Black tailed prairie dog <i>Cynomys ludovicianus</i>	K	Basin-prairie shrub, grasslands. Relatively abundant in Campbell County. The TBNG harbors one of the seven major colony complexes remaining in North America.
Swift fox <i>Vulpes velox</i>	K	Flat to gently rolling, short or mixed grass prairies, generally lacking in shrubs or woody vegetation (Cotterill 1997). Swift foxes use multiple den sites year-round for shelter, protection from predators, and rearing young.
BIRDS		
Burrowing owl <i>Athene cunicularia</i>	K	Grasslands, basin-prairie shrub. Requires burrows, primarily of badgers and prairie dogs, for nesting and roosting (Haug et al. 1993). Summer resident of open rangeland habitats throughout Wyoming, including the TBNG (Luce et al. 1999). Most burrowing owl nests in the TBNG are found in prairie dog colonies.
Ferruginous hawk <i>Buteo regalis</i>	K	Basin-prairie shrub, grasslands, rock outcrops. Construct platform stick nest in trees, on cliff ledges, or on ground. Summer TBNG resident.
Loggerhead shrike <i>Lanius ludovicianus</i>	K	Relatively open, heterogeneous habitats with perches for hunting and thorns, sharp twigs, or barbed wire for impaling prey (Yosef 1996). Common summer resident throughout Wyoming (Luce et al. 1999).

Table 2. USFS Region 2 Listed Sensitive Species That May Occur in the TBNG or be Impacted by Leasing the NARO North, Little Thunder, and West Roundup LBA Tracts (provided by USFS Douglas Ranger District, September 2002) (Continued).

Name	Status in TBNG	Habitat and Occurrence in TBNG
Long-billed curlew <i>Numenius americanus</i>	K	Grasslands, plains foothills, wet meadows, prefers to nest in areas with large open expanses of grassland, with relatively low vegetation, bare ground, and few shrubs (Hill 1998). Relatively uncommon summer resident of grasslands and sagebrush-grasslands in Wyoming (Luce et al. 1999).
Upland sandpiper <i>Bartramia longicauda</i>	K	Prairies and meadows. Uncommon summer resident of the eastern plains of Wyoming, including the TBNG (Luce et al. 1999).

Status Codes:

K = Known occurrence in vicinity. Date of last observation indicates that species still occurs in area.

S = Suspected occurrence. May be historic records but no recent observations. Suitable habitat likely.

U = Unknown occurrence, more surveys may be needed, may be historic records, potential habitat possible.

2002. The West Antelope LBA Tract does not include and TBNG lands administered by USFS, but more extensive fisheries and aquatics studies have been conducted along Antelope Creek and its tributaries for the Antelope Mine. The following discussion summarizes the results of these studies. Commonwealth Associates, Inc. conducted baseline aquatic studies for ACC in late September 1978 and mid-June 1979. The surveys included four sites on Antelope Creek (one upstream of the mine, one downstream, and two within the mine area) and one site on Horse Creek, a tributary of Antelope Creek, near its confluence with Antelope Creek. Of the three fish species listed in Table 2, the flathead chub (*Platygobio gracilis*), plains topminnow (*Fundulus sciadicus*), and the banded killifish (*Fundulus diaphanus*), only the flathead chub was recorded in Antelope Creek during these baseline surveys (Commonwealth Associates, Inc. 1980). This species was described as “relatively common”, but it constituted less than five percent of the stream catch relative abundance during either survey period. It was not collected at the station upstream from the mine, where water was nearly absent during both sampling periods. No fish were found in Horse Creek but Commonwealth Associates Inc. speculated that many of the fishes that inhabit Antelope Creek probably could also be found in Horse Creek during periods of stream flow. In 1998, minnow traps were placed in two pools in Horse Creek as part of baseline studies for the Horse Creek LBA Tract. The only species captured in the traps was the green sunfish (*Lepomis cyanellus*).

The flathead chub was also collected in Antelope Creek during studies by Wesche et al. (1978). Those studies occurred from 1975 through 1977 and included the stretch of Antelope Creek from its mouth upstream to about the middle of the

Antelope Mine permit area (about the uppermost extent of where this species was detected during the Antelope Mine baseline studies). None of the three species were collected in Porcupine Reservoir, a 40 to 50 acre impoundment near the mouth of Porcupine Creek, a small tributary to Antelope Creek, during studies conducted by Ecology Consultants, Inc. in 1977.

According to the baseline report for Antelope Mine, Baxter and Simon (1970) reported the presence of plains topminnows in Cheyenne River headwater streams, and suggest they were probably introduced (Antelope Creek is a headwater stream of the Cheyenne River). The baseline report does not name the specific headwater streams where Baxter and Simon found this species.

NARO North LBA Tract

Stretches of two tributaries to Porcupine Creek (Boss Draw and Corder Creek) cross USFS land in the NARO North LBA Tract, and the Porcupine Creek valley passes between USFS land in Sections 26 and 35, T.42N., R.71W. Porcupine Creek is a tributary of Antelope Creek, which is located approximately seven miles south of the NARO North LBA Tract. Porcupine Creek is an ephemeral to intermittent stream, which includes isolated deeper pools that tend to go dry during drought periods. Boss Draw and Corder Creek are small ephemeral drainages, which do not support fisheries under natural conditions. The addition of produced water from CBM wells in the area could increase aquatic habitat for fish species in this area if sufficient water is produced to create a perennial flow in Antelope Creek and any of its tributaries. TWC does not have complete aquatics baseline reports from the North Antelope and Rochelle Mines' permit document, although portions they do have indicate no records of USFS sensitive fish species.

Wetland habitats suitable for the northern leopard frog and tiger salamander are very limited in the vicinity of the NARO North LBA Tract. Livestock grazing and annual desiccation further limit the suitability of wetlands for the leopard frog. However, both species have been documented in the area. Leopard frogs were documented during original baseline surveys for the North Antelope and Rochelle Mines in the late 1970s. In April 1996, one leopard frog was seen in a pool along an ephemeral drainage just southeast of the North Antelope/Rochelle Complex permit area. Tiger salamander larvae were observed in a pool along Porcupine Creek during 2001.

No prairie dog colonies are located on the NARO North LBA Tract. One colony is located in SW¹/₄ of Section 26, T.42N., R.71W., approximately one half-mile from USFS lands included in the tract.

Habitats in the vicinity of the NARO North LBA tract are marginal (relatively dense sagebrush stands) for the swift fox. Sightings are rare in southern Campbell County. The species has only been documented once by TWC biologists during

22 years of wildlife studies at coal mines in the PRB. On the night of March 27, 2002, one swift fox was observed trotting beside the relocated Reno county road in SW¼ SE¼ of Section 15, T.42N., R.70W.

Burrowing owls have nested in the area but no nests have been documented on the NARO North LBA tract. Although no prairie dog colonies exist on the tract, owls could potentially nest in badger burrows.

There are three active ferruginous hawk nests located on USFS lands on the tract, and others are located within two miles. There are not abundant nesting sites for the loggerhead shrike on the NARO North LBA Tract, but they have been documented to nest on and adjacent to the tract. Upland sandpipers are relatively uncommon in the North Antelope/Rochelle Complex area but suitable habitat is abundant. Long-billed curlews have only been documented a few times in the area and suitable habitat is quite limited.

Little Thunder LBA Tract

A portion of the Little Thunder Creek drainage between Little Thunder Reservoir and Reno Reservoir crosses USFS land in Section 24, T.43N., R.71W. Little Thunder Creek is an ephemeral tributary to Black Thunder Creek, which is a tributary to the South Fork of the Cheyenne River. Little Thunder Creek does not support fisheries under natural conditions, however, CBM development could increase habitat for fish species if sufficient water is produced to create a perennial flow in Little Thunder Creek or its tributaries. No USFS sensitive fish species have been documented in the vicinity of the Little Thunder LBA Tract.

Wetland habitats suitable for the northern leopard frog and tiger salamander are limited in the vicinity of the Little Thunder LBA Tract. Livestock grazing and annual desiccation further limit the suitability of wetlands for the leopard frog. However, both species have been documented in the area. Leopard frogs were apparently relatively abundant along Little Thunder Creek during original baseline surveys for the Black Thunder Mine in 1974. The species has only been recorded once since that time. Both adult and larval tiger salamanders were observed southeast of the Little Thunder LBA Tract in 2001 and 2002. Larvae were also found along North Prong Little Thunder Creek about two miles northwest of the LBA tract in 2002.

No prairie dog colonies are located on the Little Thunder LBA Tract. The nearest colonies are more than one mile away.

Habitats in the vicinity of the Little Thunder LBA Tract are marginal (relatively dense sagebrush stands) for the swift fox. Sightings are rare in southern Campbell County. The species has only been documented once by TWC biologists during 22 years of wildlife studies at coal mines in the PRB. On the night of

March 27, 2002, one swift fox was observed approximately five miles southeast of the proposed lease area.

Burrowing owls have nested in the area but no nests have been documented on the Little Thunder LBA Tract. Although no prairie dog colonies exist on the tract, owls could potentially nest in badger burrows.

Five active ferruginous hawk nests are located on or in close proximity to USFS lands within the Little Thunder LBA Tract. The loggerhead shrike has been documented in the area but nesting habitat on the LBA tract is very limited. Upland sandpipers are relatively uncommon in the Black Thunder Mine area but suitable habitat is abundant. Long-billed curlews have only been documented a few times in the area and suitable habitat is quite limited.

West Roundup LBA Tract

A portion of the Trussler Creek drainage crosses USFS land in Sections 8 and 9, T.42N., R.70W., and a small portion of Olson Draw, a tributary to Trussler Creek crosses USFS land in Section 7, T.42N., R.70W. Trussler Creek is a tributary of Little Thunder Creek. Little Thunder Creek is a tributary of Black Thunder Creek, which is a tributary of the South Fork of the Cheyenne River. Olson Draw and Trussler Creek are ephemeral streams, which do not support fisheries under natural conditions, however, CBM development could increase habitat for fish species if sufficient water is produced to create a perennial flow in Little Thunder Creek or its tributaries. No USFS sensitive fish species have been documented in the vicinity of the West Roundup LBA Tract.

Wetland habitats suitable for the northern leopard frog and tiger salamander are very limited in the vicinity of the West Roundup LBA Tract. Livestock grazing and annual desiccation further limit the suitability of wetlands for the leopard frog. That species has not been documented in the North Rochelle Mine area. Many tiger salamander larvae were seen in several dugouts along Trussler Creek in the SE¼ of Section 5, T.42N., R.70W. during July 2001. During a light rain storm on the night of August 9, 2001, at least 10 adult salamanders were seen crossing the Reno road (paved county road) adjacent to the North Rochelle Mine railroad spur. In May 2002, two desiccated salamanders were found at a burrowing owl nest north of the Reno road in Section 5, T.42N., R.70W.

No prairie dog colonies are located on USFS lands included in the West Roundup LBA Tract. One small colony (less than three acres) is located just north of the USFS Special Use Permit area for the North Rochelle Mine in the SE¼ of Section 5, T.42N., R.70W.

Habitats in the vicinity of the West Roundup LBA Tract are marginal (relatively dense sagebrush stands) for the swift fox. Sightings are rare in southern Campbell County. The species has only been documented once by TWC biologists

during 22 years of wildlife studies at coal mines in the PRB. On the night of March 27, 2002, one swift fox was observed approximately two miles southeast of the proposed lease area.

Burrowing owls have nested in the area but no nests have been documented on the West Roundup LBA Tract. Although no prairie dog colonies exist on the tract, owls could potentially nest in badger burrows. There are two active ferruginous hawk nests located on the LBA tract and a third is within a half mile of the tract. The loggerhead shrike has been documented in the area but nesting habitat on the LBA tract is very limited. Upland sandpipers are relatively uncommon in the North Rochelle Mine area but suitable habitat is abundant. Long-billed curlews have only been documented a few times in the area and suitable habitat is quite limited.

DIRECT AND INDIRECT EFFECTS ON SENSITIVE SPECIES

The following discussion is a preliminary evaluation of the potential direct and indirect environmental effects on USFS Region 2 Sensitive Species identified as potentially inhabiting the USFS lands on the NARO North, Little Thunder, and West Roundup LBA Tracts. A more detailed Biological Assessment and Biological Evaluation Report, and Appraisal of Management Indicator Species is in preparation for these LBA tracts, and will be available upon request prior to a USFS decision to consent or not consent to leasing the USFS lands included in the three tracts. In that report, USFS will make a determination regarding the significance of any potential adverse impacts to USFS Region 2 Sensitive Species if the three LBA tracts that include USFS lands are leased.

NARO North LBA Tract

Leasing and mining the NARO North LBA Tract is not expected to impact any of the Region 2 sensitive fish species. The USFS lands included in this tract that would be disturbed include short stretches of Boss Draw and Corder Creek, which are ephemeral tributaries to Porcupine Creek, an ephemeral to intermittent tributary to Antelope Creek. Boss Draw and Corder Creek do not support fisheries under natural conditions. Produced water from CBM wells could temporarily increase aquatic habitat for fish in this area. Antelope Creek and an adjacent buffer zone would not be disturbed as a result of this leasing action or any of the leasing actions included in this EIS. Surface runoff sediment from the mined lands, which could affect water quality in Antelope Creek, would be deposited in ponds or other sediment control devices located inside the North Antelope/Rochelle Complex permit area.

Leasing and mining are not expected to impact either the black-tailed prairie dog or swift fox. There are no black-tailed prairie dog colonies located on the NARO North LBA Tract, and swift fox do not appear to inhabit the lease area.

Mining and associated activities have the potential to destroy nests and impact the reproductive success of ferruginous hawks and other raptors nesting in the area. However, PRCC has been diligent about avoiding and mitigating such impacts in the past through a variety of means. PRCC has monitored nesting raptor populations, maintained and implemented current USFWS approved Raptor Mitigation Plans, adjusted operations to provide temporal and spatial buffers around raptor nests, and ensured that new power transmission lines at the mine conform to the Avian Powerline Interaction Commission guidelines (EEI/RRF 1996). Provided that those practices are continued, direct impacts on ferruginous hawks are unlikely. Indirect impacts, such as the temporary loss of foraging habitat during active mining, are not expected to negatively affect the survival or reproductive success of any hawks.

Disturbance of habitats during mining could impact individual burrowing owls, loggerhead shrikes, and upland sandpipers, but is not likely to cause a trend to federal listing or loss of viability. PRCC can avoid direct impacts to burrowing owls by continuing to monitor nesting raptor populations, maintaining and implementing current USFWS approved Raptor Mitigation Plans, and taking precautions to provide adequate temporal and spatial buffers around nests. Assuming active shrike nests are not removed during the breeding season, direct impacts on that species should be minimal. Suitable sandpiper habitat exists on the LBA tract that could be eliminated by mining but direct impacts to individuals are unlikely. Given the paucity of past observations and the marginal habitats available in the area, impacts to the long-billed curlew are unlikely.

Little Thunder LBA Tract

Leasing and mining the Little Thunder LBA Tract is not expected to impact any of the Region 2 sensitive fish species. The USFS lands included in this tract that would be disturbed includes a portion of the Little Thunder Creek drainage, which is an ephemeral tributary of Black Thunder Creek, a tributary of the South Fork of the Cheyenne River. Little Thunder Creek does not support fisheries under natural conditions. Produced water from CBM wells could temporarily increase aquatic habitat for fish in this area. Surface runoff sediment from the mined lands, which could affect water quality downstream in Black Thunder Creek, would be deposited in ponds or other sediment control devices located inside the Black Thunder Mine permit area.

Leasing and mining are not expected to impact either the black-tailed prairie dog or swift fox. There are no black-tailed prairie dog colonies located on the Little Thunder LBA Tract, and swift fox do not appear to inhabit the lease area.

Mining and associated activities have the potential to destroy nests and impact the reproductive success of ferruginous hawks and other raptors nesting in the area. However, TBCC has been diligent about avoiding and mitigating such impacts in the past through a variety of means. TBCC has monitored nesting raptor

populations, maintained and implemented current USFWS approved Raptor Mitigation Plans, adjusted operations to provide temporal and spatial buffers around raptor nests, and ensured that new power transmission lines at the mine conform to the Avian Powerline Interaction Commission guidelines (EEI/RRF 1996). Provided that those practices are continued, direct impacts on ferruginous hawks are unlikely. Indirect impacts, such as the temporary loss of foraging habitat during active mining, are not expected to negatively affect the survival or reproductive success of any hawks.

Disturbance of habitats during mining could impact individual burrowing owls, loggerhead shrikes, and upland sandpipers, but is not likely to cause a trend to federal listing or loss of viability. TBCC can avoid direct impacts to burrowing owls by continuing to monitor nesting raptor populations, maintaining and implementing current USFWS approved Raptor Mitigation Plans, and taking precautions to provide adequate temporal and spatial buffers around nests. Assuming active shrike nests are not removed during the breeding season, direct impacts on that species should be minimal. Suitable sandpiper habitat exists on the LBA tract that could be eliminated by mining but direct impacts to individuals are unlikely. Given the paucity of past observations and the marginal habitats available in the area, impacts to the long-billed curlew are unlikely.

West Roundup LBA Tract

Leasing and mining the West Roundup LBA Tract is not expected to impact any of the Region 2 sensitive fish species. The USFS lands included in this tract that would be disturbed includes portions of the Trussler Creek drainage. Trussler Creek is an ephemeral tributary of Little Thunder Creek. Little Thunder Creek is an ephemeral tributary of Black Thunder Creek, a tributary to the South Fork of the Cheyenne River. Trussler Creek does not support fisheries under natural conditions. Produced water from CBM wells could temporarily increase aquatic habitat for fish in this area. Surface runoff sediment from the mined lands, which could affect water quality downstream in Black Thunder Creek, would be deposited in ponds or other sediment control devices located inside the North Rochelle Mine permit area.

Leasing and mining are not expected to impact either the black-tailed prairie dog or swift fox. There are no black-tailed prairie dog colonies located on the West Roundup LBA Tract, and swift fox do not appear to inhabit the lease area.

Mining and associated activities have the potential to destroy nests and impact the reproductive success of ferruginous hawks and other raptors nesting in the area. However, TCC has been diligent about avoiding and mitigating such impacts in the past through a variety of means. TCC has monitored nesting raptor populations, maintained and implemented current USFWS approved Raptor Mitigation Plans, adjusted operations to provide temporal and spatial buffers around raptor nests, and ensured that new power transmission lines at the mine

conform to the Avian Powerline Interaction Commission guidelines (EEI/RRF 1996). Provided that those practices are continued, direct impacts on ferruginous hawks are unlikely. Indirect impacts, such as the temporary loss of foraging habitat during active mining, are not expected to negatively affect the survival or reproductive success of any hawks.

Disturbance of habitats during mining could impact individual burrowing owls, loggerhead shrikes, and upland sandpipers, but is not likely to cause a trend to federal listing or loss of viability. TCC can avoid direct impacts to burrowing owls by continuing to monitor nesting raptor populations, maintaining and implementing current USFWS approved Raptor Mitigation Plans, and taking precautions to provide adequate temporal and spatial buffers around nests. Assuming active shrike nests are not removed during the breeding season, direct impacts on that species should be minimal. Suitable sandpiper habitat exists on the LBA tract that could be eliminated by mining but direct impacts to individuals are unlikely. Given the paucity of past observations and the marginal habitats available in the area, impacts to the long-billed curlew are unlikely.

CUMULATIVE EFFECTS REGARDING SENSITIVE SPECIES

Through early 2002, the lands included in the NARO North, Little Thunder, and West Roundup LBA Tracts have been used for agricultural livestock grazing and hunting. In addition to the proposed project, future activities are likely to include: coal bed methane gas exploration and development; hunting (possibly); livestock grazing; and eventual surface coal mining and reclamation with native plant species.

No critical habitat for any USFS Sensitive Species has been delineated in the LBA tracts. Except for surface coal mining, habitat disturbance associated with the future activities likely to occur in the area will be minimal in extent and duration. Any losses that do occur will eventually be mitigated by reclamation with native seed mixes, which may improve habitat quality by reducing the presence of non-native plants (e.g., crested wheatgrass) in the LBA tracts. Leasing the NARO North, Little Thunder, and West Roundup LBA Tracts will not conflict with the current Forest Plan, or any future objectives to manage the area and provide habitat for Sensitive Species.

MITIGATION

Mitigation measures designed to reduce impacts to wildlife that are required by the Surface Mining Control and Reclamation Act and state law are included in Table 4-16 of this EIS. They include:

- C using raptor-safe power lines;
- C designing fences to permit wildlife passage;
- C creating artificial raptor nest sites;
 - relocating raptor nests and taking other actions to maintain active nesting pairs;
- C restoring premining topography to the maximum extent possible;
- C planting a diverse mixture of grasses, forbs, and shrubs in configurations beneficial to wildlife; and
- C building and maintaining sediment control ponds or other sediment control devices during mining.

MONITORING

Wildlife monitoring has been and will be conducted annually by the North Antelope/Rochelle Complex, Black Thunder Mine, and North Rochelle Mine as part of the requirements of their existing mining and reclamation permits. These permits will be amended to include the NARO North, Little Thunder, and West Roundup LBA Tracts, respectively, if the tracts are leased as proposed under the Proposed Action or Action Alternatives.

USFS MANAGEMENT INDICATOR SPECIES

As part of the development of the Land and Resource Management Plan for the TBNG (USFS 2002a), the USFS identified Management Indicator Species (MIS) using seven criteria, which are listed in Appendix B of the Final EIS for the Northern Great Plains Management Plans Revision (USFS 2001). MIS are “plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality”. Currently, no plants, fish, or invertebrates are listed as MIS for the TBNG.

Table 3-128 of the Final EIS for the Northern Great Plains Management Plans Revision for the TBNG (USFS 2001) lists three MIS species that were selected by the USFS for the TBNG. These three species are sage grouse, black-tailed prairie dog, and plains sharp-tailed grouse.

Appropriate year-round habitat for the plains sharp-tailed grouse is not available in the vicinity of the NARO North, Little Thunder, or West Roundup LBA Tracts. Sharp-tailed grouse have occasionally been observed in the General Analysis Area, but not on any of the LBA tracts.

Sage grouse monitoring has occurred within the area since 1967. The overall indication is a decreasing population trend. Sage grouse generally do not respond positively to human activities and disturbances. The decline in sage grouse across its range has been attributed, in part, to loss in habitat and increased human disturbances during critical periods of its life cycle. These periods include breeding, nesting, and in some cases during stressful periods due to winter conditions.

There are currently no active sage grouse leks on the NARO North, Little Thunder, or West Roundup LBA Tracts. The nearest lek to the Little Thunder and West Roundup tracts is the Black Thunder lek (NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 31, T.31N., R.70W.). That lek has not been attended by grouse since 1993. The four known sage grouse leks that comprise the Rochelle lek complex are located near the NARO North LBA Tract. Two of those leks are active (Payne and Kort) and two have not been attended since at least 1999 (Wilson and Rochelle). The Payne and Kort leks are located in NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 26, T.42N., R.70W. and SE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 31, T.42N., R.69W., respectively. Surveys in 2002 yielded peak counts of 18 and five males on the Payne and Kort leks, respectively.

Because of its proximity to two active leks, development of the NARO North LBA Tract has the most potential to directly affect sage grouse. Potential impacts include: the destruction of active nests during topsoil removal, mortalities caused by additional vehicle traffic, and displacement of grouse from their core home range. Collectively, those factors could diminish the survival and reproductive success of grouse, resulting in a decline of the Rochelle sage grouse population.

If precautions are taken to avoid direct mortalities and disturbances to nests and leks during the breeding season, grouse will have the opportunity to disperse away from mine activities.

The range of sagebrush density and height on all three LBA tracts represents potential year-round habitat for sage grouse. Consequently, development of those tracts could potentially affect grouse through habitat disturbance and degradation. Mining could potentially eliminate all suitable habitat within the lease areas. Although sagebrush is seeded on reclaimed lands, the low recruitment and slow growth rate of sagebrush will render those areas unsuitable for grouse for at least several decades. The construction of new powerlines could diminish the value of otherwise suitable habitats by providing additional perching opportunities for golden eagles (*Aquila chrysaetos*) and thus increasing the predation risk to grouse in those areas.

The black-tailed prairie dog is a “candidate” for possible federal listing. According to the Northern Great Plains Management Plan Revision Final EIS (USFS 2001), long-term population trends for black-tailed prairie dogs on the national grasslands are down. Primary threats include habitat loss and deterioration as a result of cultivation, urban sprawl and fragmentation. However, as indicated in the previous discussion of USFS Region 2 Sensitive Species, the TBNG harbors one of the seven major black-tailed prairie dog colony complexes remaining in North America.

The occurrence of black-tailed prairie dogs on the NARO North, Little Thunder, and West Roundup LBA Tracts was discussed in the previous section on USFS Region 2 Sensitive Species.

BLM SENSITIVE SPECIES EVALUATION

INTRODUCTION

BLM Wyoming has prepared a list of sensitive species to focus species management efforts towards maintaining habitats under a multiple use mandate. The authority for this policy and guidance comes from the ESA, as amended; Title II of the Sikes Act, as amended; the FLPMA; and the Department Manual 235.1.1A., General Program Delegation, Director, BLM.

The goals of the sensitive species policy are to:

- Maintain vulnerable species and habitat components in functional BLM ecosystems.
- Ensure sensitive species are considered in land management decisions.
- Prevent a need for species listing under the Endangered Species Act.
- Prioritize needed conservation work with an emphasis on habitat.

PROJECT DESCRIPTION

Under the Proposed Action, BLM will hold separate leases for the federal coal lands in the NARO North and NARO South LBA Tracts as applied for by PRCC, the Little Thunder LBA Tract as applied for by Ark Land Company (ALC), the West Roundup LBA Tract as applied for by TCC, and the West Antelope LBA Tract as applied for by ACC (see Figures 2-1 through 2-4 and the land descriptions in Section 2.1). There are actually five Proposed Actions, one for each of the LBA tracts. For each tract, the Proposed Action assumes that the applicant for a tract would be the successful bidder on that tract and that each tract would be mined as a maintenance lease for an existing mine.

SPECIES OCCURRENCE AND HABITAT DESCRIPTIONS

Sensitive species were listed for the BLM Buffalo Field Office within its range. Numerous sensitive species do or could occur within the five LBA tracts. Specialized habitat requirements (i.e., caves, cliffs, calcareous rock outcrops) make occupation for other sensitive species unlikely. Table 3 lists BLM sensitive species and summarizes their habitat requirements.

Table 3. BLM Sensitive Species, Habitat Requirements, and Occurrence for the Buffalo Field Office.

Common Name (scientific name)	Habitat
Amphibians	
Northern leopard frog (<i>Rana pipiens</i>)	Beaver ponds, permanent water in plains and foothills
Spotted frog (<i>Rana pretiosa</i>)	Ponds, sloughs, small streams
Birds	
Baird's sparrow (<i>Ammodramus bairdii</i>)	Grasslands, weedy fields
Brewer's sparrow (<i>Spizella breweri</i>)	Basin-prairie shrub
Burrowing owl (<i>Athene cunicularia</i>)	Grasslands, basin-prairie shrub
Ferruginous hawk (<i>Buteo regalis</i>)	Basin-prairie shrub, grasslands, rock outcrops
Greater sage-grouse (<i>Centrocercus urophasianus</i>)	Basin-prairie shrub, mountain-foothill shrub
Loggerhead shrike (<i>Lanius ludovicianus</i>)	Basin-prairie shrub, mountain-foothill shrub
Long-billed curlew (<i>Numenius americanus</i>)	Grasslands, plains, foothills, wet meadows
Northern goshawk (<i>Accipiter gentilis</i>)	Conifer and deciduous forests
Peregrine falcon (<i>Falco peregrinus</i>)	Cliffs
Sage sparrow (<i>Amphispiza billneata</i>)	Basin-prairie shrub, mountain-foothill shrub
Sage thrasher (<i>Oreoscoptes montanus</i>)	Basin-prairie shrub, mountain-foothill shrub
Trumpeter swan (<i>Cygnus buccinator</i>)	Lakes, ponds, rivers
White-faced ibis (<i>Plegadis chihi</i>)	Marshes, wet meadows
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Open woodlands, streamside willow and alder groves
Mammals	
Dwarf Shrew (<i>Sorex nanus</i>)	Mountain foothill shrub, grasslands
Fringed myotis (<i>Myotis thysanodes</i>)	Conifer forests, woodland chaparral, caves and mines
Long-eared myotis (<i>Myotis evotis</i>)	Conifer and deciduous forest, caves and mines

Table 3. BLM Sensitive Species, Habitat Requirements, and Occurrence for the Buffalo Field Office (Continued).

Common Name (scientific name)	Habitat
Spotted bat (<i>Euderma maculatum</i>)	Cliffs over perennial water, basin-prairie shrub
Swift fox (<i>Vulpes velox</i>)	Grasslands
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	Forests, basin-prairie shrub, caves and mines
Plants	
Cary beardtongue (<i>Penstemon caryi</i>)	Calcareous rock outcrops and rocky soil in sage, juniper, Douglas-fir and limber pine communities; 5,200 to 8,500 ft
Porter's sagebrush (<i>Artemisia porteri</i>)	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes; 5,300 to 6,500 ft
William's wafer parsnip (<i>Cymopterus williamsii</i>)	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides; 6,000 to 8,300 ft

CREDENTIALS OF SURVEY PERSONNEL

BKS Environmental, Inc. of Gillette, Wyoming

Brenda K. Schladweiler

Ms. Schladweiler is the Senior Plant Ecologist and Reclamation Specialist for BKS Environmental, Inc. Ms. Schladweiler obtained a Master of Science degree in Soil Science and is currently pursuing a Doctorate Degree in Soil Science from the University of Wyoming. Ms. Schladweiler has skills in baseline soils and vegetation assessments in Wyoming and other western states. She has conducted soil assessments for NPDES discharge and land disposal of CBM production water, compiled reclamation plans for various coal, uranium, and bentonite projects and has coordinated management and monitoring for various mining and oil and gas reclamation projects.

Paige Wolken

Ms. Wolken obtained a Master of Science degree in Plant and Soil Sciences from the University of Wyoming. Ms. Wolken has accumulated eight years of field experience in identifying and mapping of sensitive (T&E) species, the collection and analysis of vegetation data for reclamation monitoring, and has conducted wetland delineation for state and private project permitting.

Heidi Smith

Ms. Smith is pursuing a Master of Science degree in Agronomy and Plant Pathology from the University of Wyoming. Ms. Smith has performed baseline studies and monitoring of reclaimed areas on open pit coal mines in the PRB for BKS since 1999.

Intermountain Resources of Laramie, Wyoming

Jim Orpet

Mr. Orpet obtained a Master of Science degree in Range Management from the University of Wyoming and has accumulated 23 years of field experience in vegetation and plant surveys. This experience includes preparation of plant species lists for over 100 projects throughout Wyoming. Mr. Orpet was qualified in 1987 by the WDEQ/LQD to conduct T&E and other plant and animal surveys on AML projects within the state. Qualification at that time was based on review and approval of Mr. Orpet's credentials by the WGFD and the USFWS. Mr. Orpet has also completed numerous wetland surveys that have been approved by the COE.

Russel Tait

Mr. Tait obtained a Bachelor of Science degree in Wildlife Management from the University of Wyoming and has accumulated 10 years of field experience in vegetation and plant surveys in Wyoming. Mr. Tait has assisted Mr. Orpet in conducting Ute ladies'-tresses orchid surveys for over five years on coal mines and other resource development projects in Wyoming.

Thunderbird Wildlife Consulting, Inc. of Gillette, Wyoming

Gwyn McKee

Ms. McKee obtained a Master of Science degree in Wildlife Ecology from the University of Missouri-Columbia. She has accumulated more than 15 years of professional experience, with the last eight in Wyoming. Ms. McKee has skills that include planning and conducting surveys for a variety of terrestrial and aquatic species, summarizing data, and preparing technical reports for private, state, and federal agencies. Ms. McKee is considered qualified by all state and federal agencies to conduct T&E and other wildlife surveys within the region. Those qualifications include surveys for mountain plovers and their habitat, and certification by the USFWS to conduct black-footed ferret surveys.

REFERENCES AND LITERATURE CITED

- Baxter, G.T. and M.D. Stone, 1980, Amphibians and reptiles of Wyoming. Wyoming Game and Fish Department, Lander, WY.
- Clark, T.W., and M.R. Stromberg, 1987, Mammals in Wyoming. University of Kansas, Museum of Natural History.
- Commonwealth Associates, Inc., 1980, Aquatic Wildlife Environmental Baseline Study: Antelope Coal Field, Converse County, Wyoming. Report R-2162 for NERCO, Inc. Portland, Oregon
- Cotterill, S.E., 1997, Status of the swift fox (*Vulpes velox*) in Alberta. Alberta Environmental Protection, Wildlife Status Report No. 7, Edmonton, AB.
- Dinsmore, J.J., 1983, Mountain Plover (*Charadrius montanus*). Pages 185-196 in J.S. Armbruster, editor. Impacts of Coal Surface Mining on 25 Migratory Bird Species of High Federal Interest. USFWS FWS/OBS-83/35. 348 pages.
- Edison Electric Institute/Raptor Research Foundation (EEI/RRF), 1996, Avian Powerline Interaction Commission, Suggested Practices for Raptor Protection on Powerlines – The State of the Art in 1996. EEI/RRF, Washington, D.C.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye, 1988, The Birder's Handbook: A Field Guide to the Natural History of North American Birds. Simon and Schuster, New York.
- Fertig, W., and G. Beauvais, 1999, Wyoming Plant and Animal Species of Special Concern. Unpublished report. Wyoming Natural Diversity Database, Laramie, Wyoming.
- Fitzgerald, J.P., C.A. Meaney, and D.M. Armstrong, 1994, Mammals of Colorado. Denver Museum of Natural History, Denver, Colorado.
- Haug, E.A, B.A. Millsap, and M.S. Martell, 1993, Burrowing owl (*Speotyto cunicularia*). In The Birds of North America, No. 61 (A. Poole and F. Gill, Eds.) The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.
- Hill, D.P., 1998, Status of the long-billed curlew (*Numenius americanus*) in Alberta. Alberta Environmental Protection, Wildlife Status Report No. 16, Edmonton, AB.

- Knopf, F.L., 1996, Mountain plover (*Charadrius montanus*). In The Birds of North America, No. 211 (A. Poole and F. Gill, Eds.), The Academy of Natural Sciences, Philadelphia, PA, the American Ornithologists' Union, Washington, D.C.
- Luce, B., A. Cerovski, B. Oakleaf, J. Priday, and L. Van Fleet, 1999, Atlas of birds, mammals, reptiles, and amphibians in Wyoming. Wyoming Game and Fish Department, Lander, WY.
- Martner, B.E., 1986, Wyoming Climate Atlas. Prepared in cooperation with the Wyoming Water Research Center, University of Wyoming.
- Oelklaus, W.F., 1989, Mountain Plover Status on Their Current Breeding Range. Unpublished report to NERCO Coal Corporation, Antelope Coal Company, Douglas, Wyoming.
- Parrish, T.L., 1988, Mountain Plover Habitat Selection in the Powder River Basin, Wyoming. M.S. Thesis, University of Wyoming, Laramie, Wyoming, 60 pages.
- Powder River Eagle Studies, 2000, Assessment of black-tailed prairie dog, mountain plover, and sage grouse habitat on the Black Thunder Mine permit area. Powder River Eagle Studies, Gillette, Wyoming.
- U.S. Fish and Wildlife Service, 1989, Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act. USFWS, Denver, Colorado and Albuquerque, New Mexico.
- _____, 1995, Final Rule to Reclassify the Bald Eagle from Endangered to Threatened in All of the Lower 48 States. Federal Register 60(133): 36000-36010.
- _____, 1999a, Proposed Threatened status for the mountain plover. Federal Register 64(30): 7587-7601.
- _____, 1999b, Extension of comment period and announcement of public hearings on proposal to list the mountain plover as a threatened species. Federal Register 64(74): 19108.
- _____, 2000a, 12-month administrative findings for a petition to list the black-tailed prairie dog from the National Wildlife Federation dated July 30, 1998. Web page on the internet at <<http://www.r6.fws.gov/btprairiedog/>>, accessed August 22, 2000.
- _____, 2000b, 12-month finding for a petition to list the black-tailed prairie dog as threatened. Federal Register 65(24): 5476-5488.

- _____, 2001, Annual notice of findings on recycled petitions. Federal Register 66(5): 1295-1300.
- _____, June 2002, Memorandum from Wyoming Field Office Supervisor to BLM Casper Field Office Manager, subject: Applications to lease 5 Federal Coal Tracts. June 7, 2002.
- U.S. Forest Service, 2001a, Land and Resource Management Plan for the Thunder Basin National Grassland.
- _____, 2001b, Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision for the Thunder Basin National Grassland.
- _____, 2002, Record of Decision for the Final Environmental Impact Statement and Land and Resource Management Plan Revision, Thunder Basin National Grassland.
- Wagner, G., 1997, Status of the northern leopard frog (*Rana pipiens*) in Alberta. Alberta Environmental Protection, Wildlife Status Report No. 9, Edmonton, AB.
- Wesche, T.A., B.L. Weand, G.W. Rosenlieb, and L.S. Johnson, 1978, Aquatic Biota and Abiota of Selected Streams on Thunder Basin National Grassland. Wyoming Water Resources Institute, University of Wyoming, Laramie, Wyoming.
- Yosef, R., 1996, Loggerhead shrike (*Lanius ludovicianus*). In The Birds of North America, No. 231 (A. Poole and F. Gill, Eds.) The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.